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SEQUENCE LISTING

<110> GLYCOFI, INC.

<120> METHODS TO ENGINEER MAMMALIAN-TYPE CARBOHYDRATE
STRUCTURES

<130> GFI/102 PCT

<140> PCT/US02/41510

<141> 2002-12-24

<150> 60/344,169

<151> 2001-12-27

<160> 106

<170> PatentIn Ver. 2.1

<210> 1

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 1

ggtgtttgt tttctagatc ttgcaytay cartt

35

<210> 2

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 2

agaatttgggtaagaat tccarcacca ytcrtg

36

<210> 3

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 3

cctaagctgg tatgcgttct ctttgccata tc

32

<210> 4

<211> 30

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 4
 gcggcataaaa caataataga tgctataaag

30

<210> 5
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 5
 aattaaccct cactaaaggg

20

<210> 6
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 6
 gtaatacgcac tcactatagg gc

22

<210> 7
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 7
 ccacatcatc cgtgctacat atag

24

<210> 8
 <211> 44
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 8
 acgaggcaag ctaaacagat ctogaagtat cgagggttat ccag

44

<210> 9
 <211> 44
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 9
 ccatccagtg tcgaaaacga gccaatgggt catgtctata aatc

44

<210> 10
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 10
 agcctcagcg ccaacaagcg atgg

24

<210> 11
 <211> 44
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 11
 ctggataacc ctcgatactt cgagatctgt ttagcttgcc tcgt

44

<210> 12
 <211> 44
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 12
 gatttataga catgaaccat tggctcgttt tcgacactgg atgg

44

<210> 13
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 13
 atcctttacc gatgctgtat

20

<210> 14
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 14
ataacagtat gtgttacacg cgtgtag

27

<210> 15
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 15
tcctggcgcg ccttcccgag agaactggcc tccctc

36

<210> 16
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 16
aattaattaa ccctagccct ccgctgtatc caacttg

37

<210> 17
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 17
aatgagatga ggctccgcaa tggaactg

28

<210> 18
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 18
ctgattgctt atcaacgaga attccttg 28

<210> 19
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 19
tgttggtttc tcagatgac agttggtg 28

<210> 20
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 20
agagagagat ggctttcttt tctccctgg 29

<210> 21
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 21
aatcaagtg gatgaaggac atgtggc 27

<210> 22
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 22
agcgatgcta taggcagtct ttgcagag 28

<210> 23
<211> 4
<212> PRT
<213> Saccharomyces cerevisiae

<400> 23
His Asp Glu Leu
1

<210> 24
<211> 458
<212> PRT
<213> *Saccharomyces cerevisiae*

<220>
<221> MOD_RES
<222> (304)..(318)
<223> Variable amino acid

<220>
<221> MOD_RES
<222> (416)..(436)
<223> Variable amino acid

<400> 24
Met Glu Gly Glu Gln Ser Pro Gln Gly Glu Lys Ser Leu Gln Arg Lys
1 5 10 15
Gln Phe Val Arg Pro Pro Leu Asp Leu Trp Gln Asp Leu Lys Asp Gly
20 25 30
Val Arg Tyr Val Ile Phe Asp Cys Arg Ala Asn Leu Ile Val Met Pro
35 40 45
Leu Leu Ile Leu Phe Glu Ser Met Leu Cys Lys Ile Ile Ile Lys Lys
50 55 60
Val Ala Tyr Thr Glu Ile Asp Tyr Lys Ala Tyr Met Glu Gln Ile Glu
65 70 75 80
Met Ile Gln Leu Asp Gly Met Leu Asp Tyr Ser Gln Val Ser Gly Gly
85 90 95
Thr Gly Pro Leu Val Tyr Pro Ala Gly His Val Leu Ile Tyr Lys Met
100 105 110
Met Tyr Trp Leu Thr Glu Gly Met Asp His Val Glu Arg Gly Gln Val
115 120 125
Phe Phe Arg Tyr Leu Tyr Leu Leu Thr Leu Ala Leu Gln Met Ala Cys
130 135 140
Tyr Tyr Leu Leu His Leu Pro Pro Trp Cys Val Val Leu Ala Cys Leu
145 150 155 160
Ser Lys Arg Leu His Ser Ile Tyr Val Leu Arg Leu Phe Asn Asp Cys
165 170 175
Phe Thr Thr Leu Phe Met Val Val Thr Val Leu Gly Ala Ile Val Ala
180 185 190

Ser Arg Cys His Gln Arg Pro Lys Leu Lys Lys Ser Leu Ala Leu Val
 195 200 205
 Ile Ser Ala Thr Tyr Ser Met Ala Val Ser Ile Lys Met Asn Ala Leu
 210 215 220
 Leu Tyr Phe Pro Ala Met Met Ile Ser Leu Phe Ile Leu Asn Asp Ala
 225 230 235 240
 Asn Val Ile Leu Thr Leu Leu Asp Leu Val Ala Met Ile Ala Trp Gln
 245 250 255
 Val Ala Val Ala Val Pro Phe Leu Arg Ser Phe Pro Gln Gln Tyr Leu
 260 265 270
 His Cys Ala Phe Asn Phe Gly Arg Lys Phe Met Tyr Gln Trp Ser Ile
 275 280 285
 Asn Trp Gln Met Met Asp Glu Glu Ala Phe Asn Asp Lys Arg Phe Xaa
 290 295 300
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Phe Val
 305 310 315 320
 Thr Arg Tyr Pro Arg Ile Leu Pro Asp Leu Trp Ser Ser Leu Cys His
 325 330 335
 Pro Leu Arg Lys Asn Ala Val Leu Asn Ala Asn Pro Ala Lys Thr Ile
 340 345 350
 Pro Phe Val Leu Ile Ala Ser Asn Phe Ile Gly Val Leu Phe Ser Arg
 355 360 365
 Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr His Trp Thr Leu Pro Ile
 370 375 380
 Leu Ile Phe Trp Ser Gly Met Pro Phe Phe Val Gly Pro Ile Trp Tyr
 385 390 395 400
 Val Leu His Glu Trp Cys Trp Asn Ser Tyr Pro Pro Asn Ser Gln Xaa
 405 410 415
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 420 425 430
 Xaa Xaa Xaa Xaa Ser Gly Ser Val Ala Leu Ala Lys Ser His Leu Arg
 435 440 445
 Thr Thr Ser Ser Met Glu Lys Lys Leu Asn
 450 455

<210> 25

<211> 458

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 25

Met	Glu	Gly	Glu	Gln	Ser	Pro	Gln	Gly	Glu	Lys	Ser	Leu	Gln	Arg	Lys	1	5	10	15
Gln	Phe	Val	Arg	Pro	Pro	Leu	Asp	Leu	Trp	Gln	Asp	Leu	Lys	Asp	Gly	20	25	30	
Val	Arg	Tyr	Val	Ile	Phe	Asp	Cys	Arg	Ala	Asn	Leu	Ile	Val	Met	Pro	35	40	45	
Leu	Leu	Ile	Leu	Phe	Glu	Ser	Met	Leu	Cys	Lys	Ile	Ile	Ile	Lys	Lys	50	55	60	
Val	Ala	Tyr	Thr	Glu	Ile	Asp	Tyr	Lys	Ala	Tyr	Met	Glu	Gln	Ile	Glu	65	70	75	80
Met	Ile	Gln	Leu	Asp	Gly	Met	Leu	Asp	Tyr	Ser	Gln	Val	Ser	Gly	Gly	85	90	95	
Thr	Gly	Pro	Leu	Val	Tyr	Pro	Ala	Gly	His	Val	Leu	Ile	Tyr	Lys	Met	100	105	110	
Met	Tyr	Trp	Leu	Thr	Glu	Gly	Met	Asp	His	Val	Glu	Arg	Gly	Gln	Val	115	120	125	
Phe	Phe	Arg	Tyr	Leu	Tyr	Leu	Leu	Thr	Leu	Ala	Leu	Gln	Met	Ala	Cys	130	135	140	
Tyr	Tyr	Leu	Leu	His	Leu	Pro	Pro	Trp	Cys	Val	Val	Leu	Ala	Cys	Leu	145	150	155	160
Ser	Lys	Arg	Leu	His	Ser	Ile	Tyr	Val	Leu	Arg	Leu	Phe	Asn	Asp	Cys	165	170	175	
Phe	Thr	Thr	Leu	Phe	Met	Val	Val	Thr	Val	Leu	Gly	Ala	Ile	Val	Ala	180	185	190	
Ser	Arg	Cys	His	Gln	Arg	Pro	Lys	Leu	Lys	Lys	Ser	Leu	Ala	Leu	Val	195	200	205	
Ile	Ser	Ala	Thr	Tyr	Ser	Met	Ala	Val	Ser	Ile	Lys	Met	Asn	Ala	Leu	210	215	220	
Leu	Tyr	Phe	Pro	Ala	Met	Met	Ile	Ser	Leu	Phe	Ile	Leu	Asn	Asp	Ala	225	230	235	240
Asn	Val	Ile	Leu	Thr	Leu	Leu	Asp	Leu	Val	Ala	Met	Ile	Ala	Trp	Gln	245	250	255	
Val	Ala	Val	Ala	Val	Pro	Phe	Leu	Arg	Ser	Phe	Pro	Gln	Gln	Tyr	Leu	260	265	270	
His	Cys	Ala	Phe	Asn	Phe	Gly	Arg	Lys	Phe	Met	Tyr	Gln	Trp	Ser	Ile	275	280	285	
Asn	Trp	Gln	Met	Met	Asp	Glu	Glu	Ala	Phe	Asn	Asp	Lys	Arg	Phe	His	290	295	300	

Leu Ala Leu Leu Ile Ser His Leu Ile Ala Leu Thr Thr Leu Phe Val
 305 310 315 320
 Thr Arg Tyr Pro Arg Ile Leu Pro Asp Leu Trp Ser Ser Leu Cys His
 325 330 335
 Pro Leu Arg Lys Asn Ala Val Leu Asn Ala Asn Pro Ala Lys Thr Ile
 340 345 350
 Pro Phe Val Leu Ile Ala Ser Asn Phe Ile Gly Val Leu Phe Ser Arg
 355 360 365
 Ser Leu^a His Tyr Gln Phe Leu Ser Trp Tyr His Trp Thr Leu Pro Ile
 370 375 380
 Leu Ile Phe Trp Ser Gly Met Pro Phe Phe Val Gly Pro Ile Trp Tyr
 385 390 395 400
 Val Leu His Glu Trp Cys Trp Asn Ser Tyr Pro Pro Asn Ser Gln Ala
 405 410 415
 Ser Thr Leu Leu Leu Ala Leu Asn Thr Val Leu Leu Leu Leu Leu Ala
 420 425 430
 Leu Thr Gln Leu Ser Gly Ser Val Ala Leu Ala Lys Ser His Leu Arg
 435 440 445
 Thr Thr Ser Ser Met Glu Lys Lys Leu Asn
 450 455

<210> 26
 <211> 443
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<220>
 <221> MOD_RES
 <222> (333)..(347)
 <223> Variable amino acid

<400> 26
 Trp Gln Asp Leu Lys Asp Gly Val Arg Tyr Val Ile Phe Asp Cys Arg
 1 5 10 15
 Ala Asn Leu Ile Val Met Pro Leu Leu Ile Leu Phe Glu Ser Met Leu
 20 25 30
 Cys Lys Ile Ile Ile Lys Lys Val Ala Tyr Thr Glu Ile Asp Tyr Lys
 35 40 45
 Ala Tyr Met Glu Gln Ile Glu Met Ile Gln Leu Asp Gly Met Leu Asp
 50 55 60
 Tyr Ser Gln Val Ser Gly Gly Thr Gly Pro Leu Val Tyr Pro Ala Gly
 65 70 75 80

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His Val Leu Ile Tyr Lys Met Met Tyr Trp Leu Thr Glu Gly Met Asp
85 90 95

His Val Glu Arg Gly Gln Val Phe Phe Arg Tyr Leu Tyr Leu Leu Thr
100 105 110

Leu Ala Leu Gln Met Ala Cys Tyr Tyr Leu Leu His Leu Pro Pro Trp
115 120 125

Cys Val Val Leu Ala Cys Leu Ser Lys Arg Leu His Ser Ile Tyr Val
130 135 140

Leu Arg Leu Phe Asn Asp Cys Phe Thr Thr Leu Phe Met Val Val Thr
145 150 155 160

Val Leu Gly Ala Ile Val Ala Ser Arg Cys His Gln Arg Pro Lys Leu
165 170 175

Lys Lys His Gln Thr Cys Lys Val Pro Pro Phe Val Phe Phe Phe Met
180 185 190

Cys Cys Ala Ser Tyr Arg Val His Ser Ile Phe Val Leu Arg Leu Phe
195 200 205

Asn Asp Pro Val Ala Met Val Leu Leu Phe Leu Ser Ile Asn Leu Leu
210 215 220

Leu Ala Gln Arg Trp Gly Trp Gly Ser Leu Ala Leu Val Ile Ser Ala
225 230 235 240

Thr Tyr Ser Met Ala Val Ser Ile Lys Met Asn Ala Leu Leu Tyr Phe
245 250 255

Pro Ala Met Met Ile Ser Leu Phe Ile Leu Asn Asp Ala Asn Val Ile
260 265 270

Leu Thr Leu Leu Asp Leu Val Ala Met Ile Ala Trp Gln Val Ala Val
275 280 285

Ala Val Pro Phe Leu Arg Ser Phe Pro Gln Gln Tyr Leu His Cys Ala
290 295 300

Phe Asn Phe Gly Arg Lys Phe Met Tyr Gln Trp Ser Ile Asn Trp Gln
305 310 315 320

Met Met Asp Glu Glu Ala Phe Asn Asp Lys Arg Phe Xaa Xaa Xaa Xaa
325 330 335

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Phe Val Thr Arg Tyr
340 345 350

Pro Arg Ile Leu Pro Asp Leu Trp Ser Ser Leu Cys His Pro Leu Arg
355 360 365

Lys Asn Ala Val Leu Asn Ala Asn Pro Ala Lys Thr Ile Pro Phe Val
370 375 380

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Leu Ile Ala Ser Asn Phe Ile Gly Val Leu Phe Ser Arg Ser Leu His
385 390 395 400

Tyr Gln Phe Leu Ser Trp Tyr His Trp Thr Leu Pro Ile Leu Ile Phe
405 410 415

Trp Ser Gly Met Pro Phe Phe Val Gly Pro Ile Trp Tyr Val Leu His
420 425 430

Glu Trp Cys Trp Asn Ser Tyr Pro Pro Asn Ser
435 440

<210> 27

<211> 373

<212> PRT

<213> Homo sapiens

<400> 27

Trp Gln Glu Arg Arg Leu Leu Leu Arg Glu Pro Arg Tyr Thr Leu Leu
1 5 10 15

Val Ala Ala Cys Leu Cys Leu Ala Glu Val Gly Ile Thr Phe Trp Val
20 25 30

Ile His Arg Val Ala Tyr Thr Glu Ile Asp Trp Lys Ala Tyr Met Ala
35 40 45

Glu Val Glu Gly Val Gly Thr Tyr Asp Tyr Thr Gln Leu Gln Gly Asp
50 55 60

Thr Gly Pro Leu Val Tyr Pro Ala Gly Phe Val Tyr Ile Phe Met Gly
65 70 75 80

Leu Tyr Tyr Ala Thr Ser Arg Gly Thr Asp Ile Arg Met Ala Gln Asn
85 90 95

Ile Phe Ala Val Leu Tyr Leu Ala Thr Leu Leu Leu Val Phe Leu Ile
100 105 110

Tyr His Gln Thr Cys Lys Val Pro Pro Phe Val Phe Phe Phe Met Cys
115 120 125

Cys Ala Ser Tyr Arg Val His Ser Ile Phe Val Leu Arg Leu Phe Asn
130 135 140

Asp Pro Val Ala Met Val Leu Leu Phe Leu Ser Ile Asn Leu Leu Leu
145 150 155 160

Ala Gln Arg Trp Gly Trp Gly Cys Cys Phe Phe Ser Leu Ala Val Ser
165 170 175

Val Lys Met Asn Val Leu Leu Phe Ala Pro Gly Leu Leu Phe Leu Leu
180 185 190

Leu Thr Gln Phe Gly Phe Arg Gly Ala Leu Pro Lys Leu Gly Ile Cys
195 200 205

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Ala Gly Leu Gln Val Val Leu Gly Leu Pro Phe Leu Leu Glu Asn Pro
210 215 220
Ser Gly Tyr Leu Ser Arg Ser Phe Asp Leu Gly Arg Gln Phe Leu Phe
225 230 235 240
His Trp Thr Val Asn Trp Arg Phe Leu Pro Glu Ala Leu Phe Leu His
245 250 255
Arg Ala Phe His Leu Ala Leu Leu Thr Ala His Leu Thr Leu Leu Leu
260 265 270
Leu Phe Ala Leu Cys Arg Trp His Arg Thr Gly Glu Ser Ile Leu Ser
275 280 285
Leu Leu Arg Asp Pro Ser Lys Arg Lys Val Pro Pro Gln Pro Leu Thr
290 295 300
Pro Asn Gln Ile Val Ser Thr Leu Phe Thr Ser Asn Phe Ile Gly Ile
305 310 315 320
Cys Phe Ser Arg Ser Leu His Tyr Gln Phe Tyr Val Trp Tyr Phe His
325 330 335
Thr Leu Pro Tyr Leu Leu Trp Ala Met Pro Ala Arg Trp Leu Thr His
340 345 350
Leu Leu Arg Leu Leu Val Leu Gly Leu Ile Glu Leu Ser Trp Asn Thr
355 360 365
Tyr Pro Ser Thr Ser
370

<210> 28
<211> 269
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 28
Val Arg Tyr Val Ile Phe Asp Cys Arg Ala Asn Leu Ile Val Met Pro
1 5 10 15
Leu Leu Ile Leu Phe Glu Ser Met Leu Cys Lys Ile Ile Ile Lys Lys
20 25 30
Val Ala Tyr Thr Glu Ile Asp Tyr Lys Ala Tyr Met Glu Gln Ile Glu
35 40 45
Met Ile Gln Leu Asp Gly Met Leu Asp Tyr Ser Gln Val Ser Gly Gly
50 55 60
Thr Gly Pro Leu Val Tyr Pro Ala Gly His Val Leu Ile Tyr Lys Met
65 70 75 80
Met Tyr Trp Leu Thr Glu Gly Met Asp His Val Glu Arg Gly Gln Val
85 90 95

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Phe Phe Arg Tyr Leu Tyr Leu Leu Thr Leu Ala Leu Gln Met Ala Cys
100 105 110

Tyr Tyr Leu Leu His Pro Trp Cys Val Val Leu Ala Cys Leu Ser Lys
115 120 125

Arg Leu His Ser Ile Tyr Val Leu Arg Leu Phe Asn Asp Cys Phe Thr
130 135 140

Thr Leu Phe Met Val Val Thr Val Leu Gly Ala Ile Val Ala Ser Arg
145 150 155 160

Cys His Gln Arg Pro Lys Leu Lys Lys Ser Leu Ala Leu Val Ile Ser
165 170 175

Ala Thr Tyr Ser Met Ala Val Ser Ile Lys Met Asn Ala Leu Leu Tyr
180 185 190

Phe Pro Ala Met Met Ile Ser Leu Phe Ile Leu Asn Asp Ala Asn Val
195 200 205

Ile Leu Thr Leu Leu Asp Leu Val Ala Met Ile Ala Trp Gln Val Ala
210 215 220

Val Ala Val Pro Phe Leu Arg Ser Phe Pro Gln Gln Tyr Leu His Cys
225 230 235 240

Ala Phe Asn Phe Gly Arg Lys Phe Met Tyr Gln Trp Ser Ile Asn Trp
245 250 255

Gln Met Met Asp Glu Glu Ala Phe Asn Asp Lys Arg Phe
260 265

<210> 29

<211> 258

<212> PRT

<213> *Drosophila virilis*

<400> 29

Ile Lys Tyr Leu Ala Phe Glu Pro Ala Ala Leu Pro Ile Val Ser Val
1 5 10 15

Leu Ile Val Leu Ala Glu Ala Val Ile Asn Val Leu Val Ile Gln Arg
20 25 30

Val Pro Tyr Thr Glu Ile Asp Trp Lys Ala Tyr Met Gln Glu Cys Glu
35 40 45

Gly Phe Leu Asn Gly Thr Thr Asn Tyr Ser Leu Leu Arg Gly Asp Thr
50 55 60

Gly Pro Leu Val Tyr Pro Ala Ala Phe Val Tyr Ile Tyr Ser Gly Leu
65 70 75 80

Tyr Tyr Leu Thr Gly Gln Gly Thr Asn Val Arg Leu Ala Gln Tyr Ile
85 90 95

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Phe Ala Cys Ile Tyr Leu Leu Gln Met Cys Leu Val Leu Arg Leu Tyr
100 105 110

Thr Lys Ser Arg Lys Val Pro Pro Tyr Val Leu Val Leu Ser Ala Phe
115 120 125

Thr Ser Tyr Arg Ile His Ser Ile Tyr Val Leu Arg Leu Phe Asn Asp
130 135 140

Pro Val Ala Ile Leu Leu Leu Tyr Ala Ala Leu Asn Leu Phe Leu Asp
145 150 155 160

Gln Arg Trp Thr Leu Gly Ser Ile Cys Tyr Ser Leu Ala Val Gly Val
165 170 175

Lys Met Asn Ile Leu Leu Phe Ala Pro Ala Leu Leu Leu Phe Tyr Leu
180 185 190

Ala Asn Leu Gly Val Leu Arg Thr Leu Val Gln Leu Thr Ile Cys Ala
195 200 205

Val Leu Gln Leu Phe Ile Gly Ala Pro Phe Leu Arg Thr His Pro Met
210 215 220

Glu Tyr Leu Arg Gly Ser Phe Asp Leu Gly Arg Ile Phe Glu His Lys
225 230 235 240

Trp Thr Val Asn Tyr Arg Phe Leu Ser Lys Glu Leu Phe Glu Gln Arg
245 250 255

Glu Phe

<210> 30

<211> 267

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 30

Arg Tyr Val Ile Phe Asp Cys Arg Ala Asn Leu Ile Val Met Pro Leu
1 5 10 15

Leu Ile Leu Phe Glu Ser Met Leu Cys Lys Ile Ile Ile Lys Lys Val
20 25 30

Ala Tyr Thr Glu Ile Asp Tyr Lys Ala Tyr Met Glu Gln Ile Glu Met
35 40 45

Ile Gln Leu Asp Gly Met Leu Asp Tyr Ser Gln Val Ser Gly Gly Thr
50 55 60

Gly Pro Leu Val Tyr Pro Ala Gly His Val Leu Ile Tyr Lys Met Met
65 70 75 80

Tyr Trp Leu Thr Glu Gly Met Asp His Val Glu Arg Gly Gln Val Phe
85 90 95

Phe Arg Tyr Leu Tyr Leu Leu Thr Leu Ala Leu Gln Met Ala Cys Tyr
 100 105 110
 Tyr Leu Leu His Trp Cys Val Val Leu Ala Cys Leu Ser Lys Arg Leu
 115 120 125
 His Ser Ile Tyr Val Leu Arg Leu Phe Asn Asp Cys Phe Thr Thr Leu
 130 135 140
 Phe Met Val Val Thr Val Leu Gly Ala Ile Val Ala Ser Arg Cys His
 145 150 155 160
 Gln Arg Pro Lys Leu Lys Lys Ser Leu Ala Leu Val Ile Ser Ala Thr
 165 170 175
 Tyr Ser Met Ala Val Ser Ile Lys Met Asn Ala Leu Leu Tyr Phe Pro
 180 185 190
 Ala Met Met Ile Ser Leu Phe Ile Leu Asn Asp Ala Asn Val Ile Leu
 195 200 205
 Thr Leu Leu Asp Leu Val Ala Met Ile Ala Trp Gln Val Ala Val Ala
 210 215 220
 Val Pro Phe Leu Arg Ser Phe Pro Gln Gln Tyr Leu His Cys Ala Phe
 225 230 235 240
 Asn Phe Gly Arg Lys Phe Met Tyr Gln Trp Ser Ile Asn Trp Gln Met
 245 250 255
 Met Asp Glu Glu Ala Phe Asn Asp Lys Arg Phe
 260 265

<210> 31
 <211> 257
 <212> PRT
 <213> *Drosophila melanogaster*

<400> 31
 Lys Tyr Leu Leu Leu Glu Pro Ala Ala Leu Pro Ile Val Gly Leu Phe
 1 5 10 15
 Val Leu Leu Ala Glu Leu Val Ile Asn Val Val Val Ile Gln Arg Val
 20 25 30
 Pro Tyr Thr Glu Ile Asp Trp Val Ala Tyr Met Gln Glu Cys Glu Gly
 35 40 45
 Phe Leu Asn Gly Thr Thr Asn Tyr Ser Leu Leu Arg Gly Asp Thr Gly
 50 55 60
 Pro Leu Val Tyr Pro Ala Ala Phe Val Tyr Ile Tyr Ser Ala Leu Tyr
 65 70 75 80
 Tyr Val Thr Ser His Gly Thr Asn Val Arg Leu Ala Gln Tyr Ile Phe
 85 90 95

Ala Gly Ile Tyr Leu Leu Gln Leu Ala Leu Val Leu Arg Leu Tyr Ser
100 105 110

Lys Ser Arg Lys Val Pro Pro Tyr Val Leu Val Leu Ser Ala Phe Thr
115 120 125

Ser Tyr Arg Ile His Ser Ile Tyr Val Leu Arg Leu Phe Asn Asp Pro
130 135 140

Val Ala Val Leu Leu Leu Tyr Ala Ala Leu Asn Leu Phe Leu Asp Arg
145 150 155 160

Arg Trp Thr Leu Gly Ser Thr Phe Phe Ser Leu Ala Val Gly Val Lys
165 170 175

Met Asn Ile Leu Leu Phe Ala Pro Ala Leu Leu Leu Phe Tyr Leu Ala
180 185 190

Asn Leu Gly Leu Leu Arg Thr Ile Leu Gln Leu Ala Val Cys Gly Val
195 200 205

Ile Gln Leu Leu Leu Gly Ala Pro Phe Leu Leu Thr His Pro Val Glu
210 215 220

Tyr Leu Arg Gly Ser Phe Asp Leu Gly Arg Ile Phe Glu His Lys Trp
225 230 235 240

Thr Val Asn Tyr Arg Phe Leu Ser Arg Asp Val Phe Glu Asn Arg Thr
245 250 255

Phe

<210> 32
<211> 1377
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 32
atggaagggtg aacagtctcc gcaagggtgaa aagtctctgc aaaggaagca atttgtcaga 60
cctccgctgg atctgtggca ggatctcaag gacgggtgtgc gctacgtgat cttcgattgt 120
agggccaatc ttatcggttat gccccttttg attttgttcg aaagcatgct gtgcaagatt 180
atcattaaga aggtagctta cacagagatc gattacaagg cgtacatgga gcagatcgag 240
atgattcagc tcgatggcat gctggactac tctcagggtga gtggtggaac gggcccgtg 300
gtgtatccag caggccacgt cttgatctac aagatgatgt actggctaac agagggaaatg 360
gaccacgttg agcgcgggca agtgtttttc agatacttgt atctccttac actggcggtta 420
caaattggcgt gttactacct ttacatcta ccaccgtggt gtgtggtctt ggcgtgcctc 480
tctaaaagat tgcactctat ttacgtgcta cggttattca atgattgctt cactactttg 540
tttatggtcg tcacggtttt gggggctatc gtggccagca ggtgccatca gcgccccaaa 600
ttaaagaagt cccttgcgct ggtgatctcc gcaacataca gtatggctgt gagcattaag 660
atgaatgcgc tgttgtatct ccctgcaatg atgatttctc tattcatcct taatgacgcg 720
aacgtaatcc ttacttttgt ggatctcgtt gcgatgattg catggcaagt cgcagttgca 780
gtgcccttcc tgcgcagctt tccgcaacag tacctgcatt gcgcttttaa tttcggcagg 840
aagtttatgt accaatggag tatcaattgg caaatgatgg atgaagaggc tttcaatgat 900
aagaggttcc acttgccctt tttaatcagc cacctgatag cgctcaccac actgttcgtc 960
acaagatacc ctgcgaccc tcccgatgta tgggtcttccc tgtgccatcc gctgaggaaa 1020
aatgcagtgc tcaatgcca tcccgcgaag actattccat tcgttctaact cgcaccaac 1080


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ttcatcggcg tcctattttc aaggteccctc cactaccagt ttctatcctg gtatcactgg 1140
actttgccta tactgatctt ttggtcggga atgcccttct tcgttggtcc catttggtac 1200
gtcttgacag agtgggtgctg gaattcctat ccaccaaact cacaagcaag cagcgtattg 1260
ttggcattga atactgttct gttgcttcta ttggccttga cgcagctatc tggttcggtc 1320
gccctcgcca aaagccatct tcgtaccacc agctctatgg aaaaaaagct caactga 1377

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<210> 33

<211> 458

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 33

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Gln Phe Val Arg Pro Pro Leu Asp Leu Trp Gln Asp Leu Lys Asp Gly
              20              25              30

Val Arg Tyr Val Ile Phe Asp Cys Arg Ala Asn Leu Ile Val Met Pro
              35              40              45

Leu Leu Ile Leu Phe Glu Ser Met Leu Cys Lys Ile Ile Ile Lys Lys
  50              55              60

Val Ala Tyr Thr Glu Ile Asp Tyr Lys Ala Tyr Met Glu Gln Ile Glu
  65              70              75              80

Met Ile Gln Leu Asp Gly Met Leu Asp Tyr Ser Gln Val Ser Gly Gly
              85              90              95

Thr Gly Pro Leu Val Tyr Pro Ala Gly His Val Leu Ile Tyr Lys Met
              100              105              110

Met Tyr Trp Leu Thr Glu Gly Met Asp His Val Glu Arg Gly Gln Val
              115              120              125

Phe Phe Arg Tyr Leu Tyr Leu Leu Thr Leu Ala Leu Gln Met Ala Cys
              130              135              140

Tyr Tyr Leu Leu His Leu Pro Pro Trp Cys Val Val Leu Ala Cys Leu
              145              150              155              160

Ser Lys Arg Leu His Ser Ile Tyr Val Leu Arg Leu Phe Asn Asp Cys
              165              170              175

Phe Thr Thr Leu Phe Met Val Val Thr Val Leu Gly Ala Ile Val Ala
              180              185              190

Ser Arg Cys His Gln Arg Pro Lys Leu Lys Lys Ser Leu Ala Leu Val
              195              200              205

Ile Ser Ala Thr Tyr Ser Met Ala Val Ser Ile Lys Met Asn Ala Leu
              210              215              220

Leu Tyr Phe Pro Ala Met Met Ile Ser Leu Phe Ile Leu Asn Asp Ala
              225              230              235              240

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Asn Val Ile Leu Thr Leu Leu Asp Leu Val Ala Met Ile Ala Trp Gln
 245 250 255
 Val Ala Val Ala Val Pro Phe Leu Arg Ser Phe Pro Gln Gln Tyr Leu
 260 265 270
 His Cys Ala Phe Asn Phe Gly Arg Lys Phe Met Tyr Gln Trp Ser Ile
 275 280 285
 Asn Trp Gln Met Met Asp Glu Glu Ala Phe Asn Asp Lys Arg Phe His
 290 295 300
 Leu Ala Leu Leu Ile Ser His Leu Ile Ala Leu Thr Thr Leu Phe Val
 305 310 315 320
 Thr Arg Tyr Pro Arg Ile Leu Pro Asp Leu Trp Ser Ser Leu Cys His
 325 330 335
 Pro Leu Arg Lys Asn Ala Val Leu Asn Ala Asn Pro Ala Lys Thr Ile
 340 345 350
 Pro Phe Val Leu Ile Ala Ser Asn Phe Ile Gly Val Leu Phe Ser Arg
 355 360 365
 Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr His Trp Thr Leu Pro Ile
 370 375 380
 Leu Ile Phe Trp Ser Gly Met Pro Phe Phe Val Gly Pro Ile Trp Tyr
 385 390 395 400
 Val Leu His Glu Trp Cys Trp Asn Ser Tyr Pro Pro Asn Ser Gln Ala
 405 410 415
 Ser Thr Leu Leu Leu Ala Leu Asn Thr Val Leu Leu Leu Leu Ala
 420 425 430
 Leu Thr Gln Leu Ser Gly Ser Val Ala Leu Ala Lys Ser His Leu Arg
 435 440 445
 Thr Thr Ser Ser Met Glu Lys Lys Leu Asn
 450 455

<210> 34

<211> 1395

<212> DNA

<213> Pichia pastoris

<400> 34

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 cttttatggg tagctgattc cattgttattc aaggtgatca ttggcactgt ttcttacaca 180
 gatattgatt ttcttcata tatgcaacaa atctttaaaa ttcgacaagg agaattagat 240
 tatagcaaca tatttggtga caccggtcca ttggtttacc cagccggcca tgttcattgt 300
 tactcagtac ttctgtggtg cagtgtggtt ggagaagacg tcagtttcgt tcaacaagca 360
 tttggttggt tatacctagg ttgcttggtt ctatccatca gctcctactt tttctctggc 420
 ttagggaaaa tacctccggt ttattttggt ttgttggttag cgtccaagag actgcattca 480
 atatttggtat tgagactctt caatgactgt ttaacaacat ttttgatggt ggcaactata 540

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atcatccttc aacaagcaag tagctggagg aaagatggca caactattcc attatctgtc 600
cctgatgctg cagatacgta cagtttagcc atctctgtaa agatgaatgc gctgctatac 660
ctcccagcat tcctactact catatatctc atttgtgacg aaaatttgat taaagccttg 720
gcacctgttc tagttttgat attggtgcaa gtaggagtcg gttattcgtt cattttaccg 780
ttgcactatg atgatcaggc aaatgaaatt cgttctgcct acttttagaca ggcttttgac 840
tttagtcgcc aattttctta taagtggacg gttaattggc gctttttgag ccaagaaact 900
ttcaacaatg tccattttca ccagctcctg tttgctctcc atattattac gttagtcttg 960
ttcatcctca agttcctctc tcctaaaaac attggaaaac cgcttggtag atttgtgttg 1020
gacattttca aattttggaa gccaacctta tctccaacca atattatcaa cgaccagaa 1080
agaagcccag attttgttta caccgtcatg gctactacca acttaatagg ggtgcttttt 1140
gcaagatctt tacactacca gttcctaagc tggtagcgt tctctttgcc atatctcctt 1200
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tggttggttt tcccagctac agaacaaagt tccgcgttgt tggtagctat cttactactt 1320
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aaaaagaata cataa 1395

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<210> 35
 <211> 464
 <212> PRT
 <213> *Pichia pastoris*

<400> 35
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 20 25 30
 Asp Phe Ser Val Phe Val Ala Pro Leu Leu Trp Leu Ala Asp Ser Ile
 35 40 45
 Val Ile Lys Val Ile Ile Gly Thr Val Ser Tyr Thr Asp Ile Asp Phe
 50 55 60
 Ser Ser Tyr Met Gln Gln Ile Phe Lys Ile Arg Gln Gly Glu Leu Asp
 65 70 75 80
 Tyr Ser Asn Ile Phe Gly Asp Thr Gly Pro Leu Val Tyr Pro Ala Gly
 85 90 95
 His Val His Ala Tyr Ser Val Leu Ser Trp Tyr Ser Asp Gly Gly Glu
 100 105 110
 Asp Val Ser Phe Val Gln Gln Ala Phe Gly Trp Leu Tyr Leu Gly Cys
 115 120 125
 Leu Leu Leu Ser Ile Ser Ser Tyr Phe Phe Ser Gly Leu Gly Lys Ile
 130 135 140
 Pro Pro Val Tyr Phe Val Leu Leu Val Ala Ser Lys Arg Leu His Ser
 145 150 155 160
 Ile Phe Val Leu Arg Leu Phe Asn Asp Cys Leu Thr Thr Phe Leu Met
 165 170 175
 Leu Ala Thr Ile Ile Ile Leu Gln Gln Ala Ser Ser Trp Arg Lys Asp
 180 185 190

20/93

Gly Thr Thr Ile Pro Leu Ser Val Pro Asp Ala Ala Asp Thr Tyr Ser
195 200 205

Leu Ala Ile Ser Val Lys Met Asn Ala Leu Leu Tyr Leu Pro Ala Phe
210 215 220

Leu Leu Leu Ile Tyr Leu Ile Cys Asp Glu Asn Leu Ile Lys Ala Leu
225 230 235 240

Ala Pro Val Leu Val Leu Ile Leu Val Gln Val Gly Val Gly Tyr Ser
245 250 255

Phe Ile Leu Pro Leu His Tyr Asp Asp Gln Ala Asn Glu Ile Arg Ser
260 265 270

Ala Tyr Phe Arg Gln Ala Phe Asp Phe Ser Arg Gln Phe Leu Tyr Lys
275 280 285

Trp Thr Val Asn Trp Arg Phe Leu Ser Gln Glu Thr Phe Asn Asn Val
290 295 300

His Phe His Gln Leu Leu Phe Ala Leu His Ile Ile Thr Leu Val Leu
305 310 315 320

Phe Ile Leu Lys Phe Leu Ser Pro Lys Asn Ile Gly Lys Pro Leu Gly
325 330 335

Arg Phe Val Leu Asp Ile Phe Lys Phe Trp Lys Pro Thr Leu Ser Pro
340 345 350

Thr Asn Ile Ile Asn Asp Pro Glu Arg Ser Pro Asp Phe Val Tyr Thr
355 360 365

Val Met Ala Thr Thr Asn Leu Ile Gly Val Leu Phe Ala Arg Ser Leu
370 375 380

His Tyr Gln Phe Leu Ser Trp Tyr Ala Phe Ser Leu Pro Tyr Leu Leu
385 390 395 400

Tyr Lys Ala Arg Leu Asn Phe Ile Ala Ser Ile Ile Val Tyr Ala Ala
405 410 415

His Glu Tyr Cys Trp Leu Val Phe Pro Ala Thr Glu Gln Ser Ser Ala
420 425 430

Leu Leu Val Ser Ile Leu Leu Leu Ile Leu Ile Leu Ile Phe Thr Asn
435 440 445

Glu Gln Leu Phe Pro Ser Gln Ser Val Pro Ala Glu Lys Lys Asn Thr
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<210> 36

<211> 418

<212> PRT

<213> Pichia pastoris

<220>
 <221> MOD_RES
 <222> (209)..(223)
 <223> Variable amino acid

<220>
 <221> MOD_RES
 <222> (235)..(246)
 <223> Variable amino acid

<400> 36

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Ile	Gln	Asn	Val	Leu	Phe	Asn	Pro	Asp	Phe	Ser	Val	Phe	Val	Ala	Pro	20	25	30	
Leu	Leu	Trp	Leu	Ala	Asp	Ser	Ile	Val	Ile	Lys	Val	Ile	Ile	Gly	Thr	35	40	45	
Val	Ser	Tyr	Thr	Asp	Ile	Asp	Phe	Ser	Ser	Tyr	Met	Gln	Gln	Ile	Phe	50	55	60	
Lys	Ile	Arg	Gln	Gly	Glu	Leu	Asp	Tyr	Ser	Asn	Ile	Phe	Gly	Asp	Thr	65	70	75	80
Gly	Pro	Leu	Val	Tyr	Pro	Ala	Gly	His	Val	His	Ala	Tyr	Ser	Val	Leu	85	90	95	
Ser	Trp	Tyr	Ser	Asp	Gly	Gly	Glu	Asp	Val	Ser	Phe	Val	Gln	Gln	Ala	100	105	110	
Phe	Gly	Trp	Leu	Tyr	Leu	Gly	Cys	Leu	Leu	Leu	Ser	Ile	Ser	Ser	Tyr	115	120	125	
Phe	Phe	Ser	Gly	Leu	Gly	Lys	Ile	Pro	Pro	Val	Tyr	Phe	Val	Leu	Leu	130	135	140	
Val	Ala	Ser	Lys	Arg	Leu	His	Ser	Ile	Phe	Val	Leu	Arg	Leu	Phe	Asn	145	150	155	160
Asp	Cys	Leu	Thr	Thr	Phe	Leu	Met	Leu	Ala	Thr	Ile	Ile	Ile	Leu	Gln	165	170	175	
Gln	Ala	Ser	Ser	Trp	Arg	Lys	Asp	Gly	Thr	Thr	Ile	Pro	Leu	Ser	Val	180	185	190	
Pro	Asp	Ala	Ala	Asp	Thr	Tyr	Ser	Leu	Ala	Ile	Ser	Val	Lys	Met	Asn	195	200	205	
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Cys	210	215	220	
Asp	Glu	Asn	Leu	Ile	Lys	Ala	Leu	Ala	Pro	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	225	230	235	240
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Tyr	Ser	Phe	Ile	Leu	Pro	Leu	His	Tyr	Asp	245	250	255	

Asp Gln Ala Asn Glu Ile Arg Ser Ala Tyr Phe Arg Gln Ala Phe Asp
 260 265 270
 Phe Ser Arg Gln Phe Leu Tyr Lys Trp Thr Val Asn Trp Arg Phe Leu
 275 280 285
 Ser Gln Glu Thr Phe Asn Asn Val His Phe His Gln Leu Leu Phe Ala
 290 295 300
 Leu His Ile Ile Thr Leu Val Leu Phe Ile Leu Lys Phe Leu Ser Pro
 305 310 315 320
 Lys Asn Ile Gly Lys Pro Leu Gly Arg Phe Val Leu Asp Ile Phe Lys
 325 330 335
 Phe Trp Lys Pro Thr Leu Ser Pro Thr Asn Ile Ile Asn Pro Asp Phe
 340 345 350
 Val Tyr Thr Val Met Ala Thr Thr Asn Leu Ile Gly Val Leu Phe Ala
 355 360 365
 Arg Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr Ala Phe Ser Leu Pro
 370 375 380
 Tyr Leu Leu Tyr Lys Ala Arg Leu Asn Phe Ile Ala Ser Ile Ile Val
 385 390 395 400
 Tyr Ala Ala His Glu Tyr Cys Trp Leu Val Phe Pro Ala Thr Glu Gln
 405 410 415
 Ser Ser

<210> 37
 <211> 398
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 37
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 Leu Phe Glu Ser Met Leu Cys Lys Ile Ile Ile Lys Lys Val Ala Tyr
 35 40 45
 Thr Glu Ile Asp Tyr Lys Ala Tyr Met Glu Gln Ile Glu Met Ile Gln
 50 55 60
 Leu Asp Gly Met Leu Asp Tyr Ser Gln Val Ser Gly Gly Thr Gly Pro
 65 70 75 80
 Leu Val Tyr Pro Ala Gly His Val Leu Ile Tyr Lys Met Met Tyr Trp
 85 90 95

Leu Thr Glu Gly Met Asp His Val Glu Arg Gly Gln Val Phe Phe Arg
 100 105 110
 Tyr Leu Tyr Leu Leu Thr Leu Ala Leu Gln Met Ala Cys Tyr Tyr Leu
 115 120 125
 Leu His Leu Pro Pro Trp Cys Val Val Leu Ala Cys Leu Ser Lys Arg
 130 135 140
 Leu His Ser Ile Tyr Val Leu Arg Leu Phe Asn Asp Cys Phe Thr Thr
 145 150 155 160
 Leu Phe Met Val Val Thr Val Leu Gly Ala Ile Val Ala Ser Arg Cys
 165 170 175
 His Gln Arg Pro Lys Leu Lys Lys Ser Leu Ala Leu Val Ile Ser Ala
 180 185 190
 Thr Tyr Ser Met Ala Val Ser Ile Lys Met Asn Ala Leu Leu Tyr Phe
 195 200 205
 Pro Ala Met Met Ile Ser Leu Phe Ile Leu Asn Asp Ala Asn Val Ile
 210 215 220
 Leu Thr Leu Leu Asp Leu Val Ala Met Ile Ala Trp Gln Val Ala Val
 225 230 235 240
 Ala Val Pro Phe Leu Arg Ser Phe Pro Gln Gln Tyr Leu His Cys Ala
 245 250 255
 Phe Asn Phe Gly Arg Lys Phe Met Tyr Gln Trp Ser Ile Asn Trp Gln
 260 265 270
 Met Met Asp Glu Glu Ala Phe Asn Asp Lys Arg Phe His Leu Ala Leu
 275 280 285
 Leu Ile Ser His Leu Ile Ala Leu Thr Thr Leu Phe Val Thr Arg Tyr
 290 295 300
 Pro Arg Ile Leu Pro Asp Leu Trp Ser Ser Leu Cys His Pro Leu Arg
 305 310 315 320
 Lys Asn Ala Val Leu Asn Ala Asn Pro Ala Lys Thr Ile Pro Phe Val
 325 330 335
 Leu Ile Ala Ser Asn Phe Ile Gly Val Leu Phe Ser Arg Ser Leu His
 340 345 350
 Tyr Gln Phe Leu Ser Trp Tyr His Trp Thr Leu Pro Ile Leu Ile Phe
 355 360 365
 Trp Ser Gly Met Pro Phe Phe Val Gly Pro Ile Trp Tyr Val Leu His
 370 375 380
 Glu Trp Cys Trp Asn Ser Tyr Pro Pro Asn Ser Gln Ala Ser
 385 390 395

<210> 38
 <211> 387
 <212> PRT
 <213> Pichia pastoris

<220>
 <221> MOD_RES
 <222> (183)..(197)
 <223> Variable amino acid

<220>
 <221> MOD_RES
 <222> (209)..(220)
 <223> Variable amino acid

<400> 38
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 Lys Val Ile Ile Gly Thr Val Ser Tyr Thr Asp Ile Asp Phe Ser Ser
 20 25 30
 Tyr Met Gln Gln Ile Phe Lys Ile Arg Gln Gly Glu Leu Asp Tyr Ser
 35 40 45
 Asn Ile Phe Gly Asp Thr Gly Pro Leu Val Tyr Pro Ala Gly His Val
 50 55 60
 His Ala Tyr Ser Val Leu Ser Trp Tyr Ser Asp Gly Gly Glu Asp Val
 65 70 75 80
 Ser Phe Val Gln Gln Ala Phe Gly Trp Leu Tyr Leu Gly Cys Leu Leu
 85 90 95
 Leu Ser Ile Ser Ser Tyr Phe Phe Ser Gly Leu Gly Lys Ile Pro Pro
 100 105 110
 Val Tyr Phe Val Leu Leu Val Ala Ser Lys Arg Leu His Ser Ile Phe
 115 120 125
 Val Leu Arg Leu Phe Asn Asp Cys Leu Thr Thr Phe Leu Met Leu Ala
 130 135 140
 Thr Ile Ile Ile Leu Gln Gln Ala Ser Ser Trp Arg Lys Asp Gly Thr
 145 150 155 160
 Thr Ile Pro Leu Ser Val Pro Asp Ala Ala Asp Thr Tyr Ser Leu Ala
 165 170 175
 Ile Ser Val Lys Met Asn Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 180 185 190
 Xaa Xaa Xaa Xaa Xaa Cys Asp Glu Asn Leu Ile Lys Ala Leu Ala Pro
 195 200 205
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Ser Phe Ile
 210 215 220

Leu Pro Leu His Tyr Asp Asp Gln Ala Asn Glu Ile Arg Ser Ala Tyr
 225 230 235 240
 Phe Arg Gln Ala Phe Asp Phe Ser Arg Gln Phe Leu Tyr Lys Trp Thr
 245 250 255
 Val Asn Trp Arg Phe Leu Ser Gln Glu Thr Phe Asn Asn Val His Phe
 260 265 270
 His Gln Leu Leu Phe Ala Leu His Ile Ile Thr Leu Val Leu Phe Ile
 275 280 285
 Pro Leu Gly Arg Phe Val Leu Asp Ile Phe Lys Phe Trp Lys Pro Thr
 290 295 300
 Leu Ser Pro Thr Asn Ile Ile Asn Asp Pro Glu Arg Ser Pro Asp Phe
 305 310 315 320
 Val Tyr Thr Val Met Ala Thr Thr Asn Leu Ile Gly Val Leu Phe Ala
 325 330 335
 Arg Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr Ala Phe Ser Leu Pro
 340 345 350
 Tyr Leu Leu Tyr Lys Ala Arg Leu Asn Phe Ile Ala Ser Ile Ile Val
 355 360 365
 Tyr Ala Ala His Glu Tyr Cys Trp Leu Val Phe Pro Ala Thr Glu Gln
 370 375 380
 Ser Ser Ala
 385

<210> 39
 <211> 373
 <212> PRT
 <213> Neurospora crassa

<400> 39
 Ser Lys Leu Ile Pro Pro Ala Leu Phe Leu Val Asp Ala Leu Leu Cys
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 Gly Leu Ile Ile Trp Lys Val Pro Tyr Thr Glu Ile Asp Trp Ala Ala
 20 25 30
 Tyr Met Glu Gln Val Ser Gln Ile Leu Ser Gly Glu Arg Asp Tyr Thr
 35 40 45
 Lys Val Arg Gly Gly Thr Gly Pro Leu Val Tyr Pro Ala Ala His Val
 50 55 60
 Tyr Ile Tyr Thr Gly Leu Tyr His Leu Thr Asp Glu Gly Arg Asn Ile
 65 70 75 80
 Leu Leu Ala Gln Gln Leu Phe Ala Gly Leu Tyr Met Val Thr Leu Ala
 85 90 95

Val Val Met Gly Cys Tyr Trp Gln Ala Lys Ala Pro Pro Tyr Leu Phe
 100 105 110
 Pro Leu Leu Thr Leu Ser Lys Arg Leu His Ser Ile Phe Val Leu Arg
 115 120 125
 Cys Phe Asn Asp Cys Phe Ala Val Leu Phe Leu Trp Leu Ala Ile Phe
 130 135 140
 Phe Phe Gln Arg Arg Asn Trp Gln Ala Gly Ala Leu Leu Tyr Thr Leu
 145 150 155 160
 Gly Leu Gly Val Lys Met Thr Leu Leu Leu Ser Leu Pro Ala Val Gly
 165 170 175
 Ile Val Leu Phe Leu Gly Ser Gly Ser Phe Val Thr Thr Leu Gln Leu
 180 185 190
 Val Ala Thr Met Gly Leu Val Gln Ile Leu Ile Gly Val Pro Phe Leu
 195 200 205
 Ala His Tyr Pro Thr Glu Tyr Leu Ser Arg Ala Phe Glu Leu Ser Arg
 210 215 220
 Gln Phe Phe Phe Lys Trp Thr Val Asn Trp Arg Phe Val Gly Glu Glu
 225 230 235 240
 Ile Phe Leu Ser Lys Gly Phe Ala Leu Thr Leu Leu Ala Leu His Val
 245 250 255
 Leu Val Leu Gly Ile Phe Ile Thr Thr Arg Trp Ile Lys Pro Ala Arg
 260 265 270
 Lys Ser Leu Val Gln Leu Ile Ser Pro Val Leu Leu Ala Gly Lys Pro
 275 280 285
 Pro Leu Thr Val Pro Glu His Arg Ala Ala Ala Arg Asp Val Thr Pro
 290 295 300
 Arg Tyr Ile Met Thr Thr Ile Leu Ser Ala Asn Ala Val Gly Leu Leu
 305 310 315 320
 Phe Ala Arg Ser Leu His Tyr Gln Phe Tyr Ala Tyr Val Ala Trp Ser
 325 330 335
 Thr Pro Phe Leu Leu Trp Arg Ala Gly Leu His Pro Val Leu Val Tyr
 340 345 350
 Leu Leu Trp Ala Val His Glu Trp Ala Trp Asn Val Phe Pro Ser Thr
 355 360 365
 Pro Ala Ser Ser Ala
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<210> 40
 <211> 390

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<220>  
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<222> (202)..(213)  
<223> Variable amino acid
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Ser Arg Gln Phe Leu Tyr Lys Trp Thr Val Asn Trp Arg Phe Leu Ser
 245 250 255
 Gln Glu Thr Phe Asn Asn Val His Phe His Gln Leu Leu Phe Ala Leu
 260 265 270
 His Ile Ile Thr Leu Val Leu Phe Ile Leu Lys Phe Leu Ser Pro Lys
 275 280 285
 Asn Ile Gly Lys Pro Leu Gly Arg Phe Val Leu Asp Ile Phe Lys Phe
 290 295 300
 Trp Lys Pro Thr Leu Ser Pro Thr Asn Ile Ile Asn Asp Pro Glu Arg
 305 310 315 320
 Ser Pro Asp Phe Val Tyr Thr Val Met Ala Thr Thr Asn Leu Ile Gly
 325 330 335
 Val Leu Phe Ala Arg Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr Ala
 340 345 350
 Phe Ser Leu Pro Tyr Leu Leu Tyr Lys Ala Arg Leu Asn Phe Ile Ala
 355 360 365
 Ser Ile Ile Val Tyr Ala Ala His Glu Tyr Cys Trp Leu Val Phe Pro
 370 375 380
 Ala Thr Glu Gln Ser Ser
 385 390

<210> 41

<211> 355

<212> PRT

<213> Schizosaccharomyces pombe

<400> 41

Leu Leu Leu Leu Glu Ile Pro Phe Val Phe Ala Ile Ile Ser Lys Val
 1 5 10 15
 Pro Tyr Thr Glu Ile Asp Trp Ile Ala Tyr Met Glu Gln Val Asn Ser
 20 25 30
 Phe Leu Leu Gly Glu Arg Asp Tyr Lys Ser Leu Val Gly Cys Thr Gly
 35 40 45
 Pro Leu Val Tyr Pro Gly Gly His Val Phe Leu Tyr Thr Leu Leu Tyr
 50 55 60
 Tyr Leu Thr Asp Gly Gly Thr Asn Ile Val Arg Ala Gln Tyr Ile Phe
 65 70 75 80
 Ala Phe Val Tyr Trp Ile Thr Thr Ala Ile Val Gly Tyr Leu Phe Lys
 85 90 95
 Ile Val Arg Ala Pro Phe Tyr Ile Tyr Val Leu Leu Ile Leu Ser Lys
 100 105 110

Arg Leu His Ser Ile Phe Ile Leu Arg Leu Phe Asn Asp Gly Phe Asn
 115 120 125
 Ser Leu Phe Ser Ser Leu Phe Ile Leu Ser Ser Cys Lys Lys Lys Trp
 130 135 140
 Val Arg Ala Ser Ile Leu Leu Ser Val Ala Cys Ser Val Lys Met Ser
 145 150 155 160
 Ser Leu Leu Tyr Val Pro Ala Tyr Leu Val Leu Leu Leu Gln Ile Leu
 165 170 175
 Gly Pro Lys Lys Thr Trp Met His Ile Phe Val Ile Ile Ile Val Gln
 180 185 190
 Ile Leu Phe Ser Ile Pro Phe Leu Ala Tyr Phe Trp Ser Tyr Trp Thr
 195 200 205
 Gln Ala Phe Asp Phe Gly Arg Ala Phe Asp Tyr Lys Trp Thr Val Asn
 210 215 220
 Trp Arg Phe Ile Pro Arg Ser Ile Phe Glu Ser Thr Ser Phe Ser Thr
 225 230 235 240
 Ser Ile Leu Phe Leu His Val Ala Leu Leu Val Ala Phe Thr Cys Lys
 245 250 255
 His Trp Asn Lys Leu Ser Arg Ala Thr Pro Phe Ala Met Val Asn Ser
 260 265 270
 Met Leu Thr Leu Lys Pro Leu Pro Lys Leu Gln Leu Ala Thr Pro Asn
 275 280 285
 Phe Ile Phe Thr Ala Leu Ala Thr Ser Asn Leu Ile Gly Ile Leu Cys
 290 295 300
 Ala Arg Ser Leu His Tyr Gln Phe Tyr Ala Trp Phe Ala Trp Tyr Ser
 305 310 315 320
 Pro Tyr Leu Cys Tyr Gln Ala Ser Phe Pro Ala Pro Ile Val Ile Gly
 325 330 335
 Leu Trp Met Leu Gln Glu Tyr Ala Trp Asn Val Phe Pro Ser Thr Lys
 340 345 350
 Leu Ser Ser
 355

<210> 42
 <211> 390
 <212> PRT
 <213> Pichia pastoris

<220>
 <221> MOD_RES

<222> (176)..(190)

<223> Variable amino acid

<220>

<221> MOD_RES

<222> (202)..(213)

<223> Variable amino acid

<400> 42

Leu Trp Leu Ala Asp Ser Ile Val Ile Lys Val Ile Ile Gly Thr Val
 1 5 10 15

Ser Tyr Thr Asp Ile Asp Phe Ser Ser Tyr Met Gln Gln Ile Phe Lys
 20 25 30

Ile Arg Gln Gly Glu Leu Asp Tyr Ser Asn Ile Phe Gly Asp Thr Gly
 35 40 45

Pro Leu Val Tyr Pro Ala Gly His Val His Ala Tyr Ser Val Leu Ser
 50 55 60

Trp Tyr Ser Asp Gly Gly Glu Asp Val Ser Phe Val Gln Gln Ala Phe
 65 70 75 80

Gly Trp Leu Tyr Leu Gly Cys Leu Leu Leu Ser Ile Ser Ser Tyr Phe
 85 90 95

Phe Ser Gly Leu Gly Lys Ile Pro Pro Val Tyr Phe Val Leu Leu Val
 100 105 110

Ala Ser Lys Arg Leu His Ser Ile Phe Val Leu Arg Leu Phe Asn Asp
 115 120 125

Cys Leu Thr Thr Phe Leu Met Leu Ala Thr Ile Ile Ile Leu Gln Gln
 130 135 140

Ala Ser Ser Trp Arg Lys Asp Gly Thr Thr Ile Pro Leu Ser Val Pro
 145 150 155 160

Asp Ala Ala Asp Thr Tyr Ser Leu Ala Ile Ser Val Lys Met Asn Xaa
 165 170 175

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Asp
 180 185 190

Glu Asn Leu Ile Lys Ala Leu Ala Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 195 200 205

Xaa Xaa Xaa Xaa Xaa Tyr Ser Phe Ile Leu Pro Leu His Tyr Asp Asp
 210 215 220

Gln Ala Asn Glu Ile Arg Ser Ala Tyr Phe Arg Gln Ala Phe Asp Phe
 225 230 235 240

Ser Arg Gln Phe Leu Tyr Lys Trp Thr Val Asn Trp Arg Phe Leu Ser
 245 250 255

Gln Glu Thr Phe Asn Asn Val His Phe His Gln Leu Leu Phe Ala Leu
 260 265 270
 His Ile Ile Thr Leu Val Leu Phe Ile Leu Lys Phe Leu Ser Pro Lys
 275 280 285
 Asn Ile Gly Lys Pro Leu Gly Arg Phe Val Leu Asp Ile Phe Lys Phe
 290 295 300
 Trp Lys Pro Thr Leu Ser Pro Thr Asn Ile Ile Asn Asp Pro Glu Arg
 305 310 315 320
 Ser Pro Asp Phe Val Tyr Thr Val Met Ala Thr Thr Asn Leu Ile Gly
 325 330 335
 Val Leu Phe Ala Arg Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr Ala
 340 345 350
 Phe Ser Leu Pro Tyr Leu Leu Tyr Lys Ala Arg Leu Asn Phe Ile Ala
 355 360 365
 Ser Ile Ile Val Tyr Ala Ala His Glu Tyr Cys Trp Leu Val Phe Pro
 370 375 380
 Ala Thr Glu Gln Ser Ser
 385 390

<210> 43
 <211> 363
 <212> PRT
 <213> Arabidopsis thaliana

<400> 43
 Leu Ile Leu Ala Asp Ala Ile Leu Val Ala Leu Ile Ile Ala Tyr Val
 1 5 10 15
 Pro Tyr Thr Lys Ile Asp Trp Asp Ala Tyr Met Ser Gln Val Ser Gly
 20 25 30
 Phe Leu Gly Gly Glu Arg Asp Tyr Gly Asn Leu Lys Gly Asp Thr Gly
 35 40 45
 Pro Leu Val Tyr Pro Ala Gly Phe Leu Tyr Val Tyr Ser Ala Val Gln
 50 55 60
 Asn Leu Thr Gly Gly Glu Val Tyr Pro Ala Gln Ile Leu Phe Gly Val
 65 70 75 80
 Leu Tyr Ile Val Asn Leu Gly Ile Val Leu Ile Ile Tyr Val Lys Thr
 85 90 95
 Asp Val Val Pro Trp Trp Ala Leu Ser Leu Leu Cys Leu Ser Lys Arg
 100 105 110
 Ile His Ser Ile Phe Val Leu Arg Leu Phe Asn Asp Cys Phe Ala Met
 115 120 125

Thr Leu Leu His Ala Ser Met Ala Leu Phe Leu Tyr Arg Lys Trp His
 130 135 140
 Leu Gly Met Leu Val Phe Ser Gly Ala Val Ser Val Lys Met Asn Val
 145 150 155 160
 Leu Leu Tyr Ala Pro Thr Leu Leu Leu Leu Leu Lys Ala Met Asn
 165 170 175
 Ile Ile Gly Val Val Ser Ala Leu Ala Gly Ala Ala Leu Ala Gln Ile
 180 185 190
 Leu Val Gly Leu Pro Phe Leu Ile Thr Tyr Pro Val Ser Tyr Ile Ala
 195 200 205
 Asn Ala Phe Asp Leu Gly Arg Val Phe Ile His Phe Trp Ser Val Asn
 210 215 220
 Phe Lys Phe Val Pro Glu Arg Val Phe Val Ser Lys Glu Phe Ala Val
 225 230 235 240
 Cys Leu Leu Ile Ala His Leu Phe Leu Leu Val Ala Phe Ala Asn Tyr
 245 250 255
 Lys Trp Cys Lys His Glu Gly Gly Ile Ile Gly Phe Met Arg Ser Arg
 260 265 270
 His Phe Phe Leu Thr Leu Pro Ser Ser Leu Ser Phe Ser Asp Val Ser
 275 280 285
 Ala Ser Arg Ile Ile Thr Lys Glu His Val Val Thr Ala Met Phe Val
 290 295 300
 Gly Asn Phe Ile Gly Ile Val Phe Ala Arg Ser Leu His Tyr Gln Phe
 305 310 315 320
 Tyr Ser Trp Tyr Phe Tyr Ser Leu Pro Tyr Leu Leu Trp Arg Thr Pro
 325 330 335
 Phe Pro Thr Trp Leu Arg Leu Ile Met Phe Leu Gly Ile Glu Leu Cys
 340 345 350
 Trp Asn Val Tyr Pro Ser Thr Pro Ser Ser Ser
 355 360

<210> 44

<211> 428

<212> DNA

<213> Kluyveromyces lactis

<400> 44

tttgtttaca agctgatacc aacgaacatg aatacaccgg caggtttact gaagattggc 60
 aaagctaacc ttttacatcc ttttaccgat gctgtattca gtgcgatgag agtaaacgca 120
 gaacaaattg catacatttt acttgttacc aattacattg gagtactatt tgctcgatca 180
 ttacactacc aattcctatc ttggtaccat tggacgttac cagtactatt gaattgggccc 240
 aatgttccgt atccgctatg tgtgctatgg tacctaacac atgagtgggtg ctggaacagc 300
 tatccgccaa acgctactgc atccacactg ctacacgcgt gtaacacata ctgttattgg 360

ctgtattctt aagaggaccc gcaaactcga aaagtgggtga taacgaaaca acacacgaga 420
aagctgag 428

<210> 45
<211> 141
<212> PRT
<213> Kluyveromyces lactis

<400> 45
Phe Val Tyr Lys Leu Ile Pro Thr Asn Met Asn Thr Pro Ala Gly Leu
1 5 10 15
Leu Lys Ile Gly Lys Ala Asn Leu Leu His Pro Phe Thr Asp Ala Val
20 25 30
Phe Ser Ala Met Arg Val Asn Ala Glu Gln Ile Ala Tyr Ile Leu Leu
35 40 45
Val Thr Asn Tyr Ile Gly Val Leu Phe Ala Arg Ser Leu His Tyr Gln
50 55 60
Phe Leu Ser Trp Tyr His Trp Thr Leu Pro Val Leu Leu Asn Trp Ala
65 70 75 80
Asn Val Pro Tyr Pro Leu Cys Val Leu Trp Tyr Leu Thr His Glu Trp
85 90 95
Cys Trp Asn Ser Tyr Pro Pro Asn Ala Thr Ala Ser Thr Leu Leu His
100 105 110
Ala Cys Asn Thr Tyr Cys Tyr Trp Leu Tyr Ser Glu Asp Pro Gln Thr
115 120 125
Arg Lys Val Val Ile Thr Lys Gln His Thr Arg Lys Leu
130 135 140

<210> 46
<211> 118
<212> PRT
<213> Kluyveromyces lactis

<400> 46
Ala Asn Leu Leu His Pro Phe Thr Asp Ala Val Phe Ser Ala Met Arg
1 5 10 15
Val Asn Ala Glu Gln Ile Ala Tyr Ile Leu Leu Val Thr Asn Tyr Ile
20 25 30
Gly Val Leu Phe Ala Arg Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr
35 40 45
His Trp Thr Leu Pro Val Leu Leu Asn Trp Ala Asn Val Pro Tyr Pro
50 55 60
Leu Cys Val Leu Trp Tyr Leu Thr His Glu Trp Cys Trp Asn Ser Tyr
65 70 75 80

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<400> 47
Ser Ser Leu Cys His Pro Leu Arg Lys Asn Ala Val Leu Asn Ala Asn
  1              5              10              15

Pro Ala Lys Thr Ile Pro Phe Val Leu Ile Ala Ser Asn Phe Ile Gly
      20              25              30

Val Leu Phe Ser Arg Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr His
      35              40              45

Trp Thr Leu Pro Ile Leu Ile Phe Trp Ser Gly Met Pro Phe Phe Val
  50              55              60

Gly Pro Ile Trp Tyr Val Leu His Glu Trp Cys Trp Asn Ser Tyr Pro
  65              70              75              80

Pro Asn Ser Gln Ala Ser Thr Leu Leu Leu Ala Leu Asn Thr Val Leu
      85              90              95

Leu Leu Leu Leu Ala Leu Thr Gln Leu Ser Gly Ser Val Ala Leu Ala
      100              105              110

Lys Ser His Leu Arg
      115

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<400> 48
Phe Thr Asp Ala Val Phe Ser Ala Met Arg Val Asn Ala Glu Gln Ile
  1                      5                      10                      15
Ala Tyr Ile Leu Leu Val Thr Asn Tyr Ile Gly Val Leu Phe Ala Arg
                20                      25                      30
Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr His Trp Thr Leu Pro Val
      35                      40                      45

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Leu Leu Asn Trp Ala Asn Val Pro Tyr Pro Leu Cys Val Leu Trp Tyr
 50 55 60

Leu Thr His Glu Trp Cys Trp Asn Ser Tyr Pro Pro Asn Ala Thr Ala
 65 70 75 80

Ser Thr Leu Leu His Ala Cys Asn Thr Tyr Cys Tyr Trp Leu Tyr Ser
 85 90 95

Glu Asp Pro Gln Thr Arg Lys Val Val Ile Thr Lys Gln His Thr Arg
 100 105 110

Lys

<210> 49

<211> 106

<212> PRT

<213> Arabidopsis thaliana

<400> 49

Phe Ser Asp Val Ser Ala Ser Arg Ile Ile Thr Lys Glu His Val Val
 1 5 10 15

Thr Ala Met Phe Val Gly Asn Phe Ile Gly Ile Val Phe Ala Arg Ser
 20 25 30

Leu His Tyr Gln Phe Tyr Ser Trp Tyr Phe Tyr Ser Leu Pro Tyr Leu
 35 40 45

Leu Trp Arg Thr Pro Phe Pro Thr Trp Leu Arg Leu Ile Met Phe Leu
 50 55 60

Gly Ile Glu Leu Cys Trp Asn Val Tyr Pro Ser Thr Pro Ser Ser Ser
 65 70 75 80

Gly Leu Leu Leu Cys Leu His Leu Ile Ile Leu Val Gly Leu Trp Leu
 85 90 95

Ala Pro Ser Val Asp Pro Tyr Gln Leu Lys
 100 105

<210> 50

<211> 1668

<212> DNA

<213> Saccharomyces cerevisiae

<400> 50

atgaattgca aggcggtaac cattagttta ttactgttgt tatttttaac aagagtatat 60
 attcagccga cattctcggt aatttcagat tgcgatgaaa cttttaatta ttgggaacca 120
 ttaaatttat tggtagctgg atttggtaaa caaacctggg aatattcacc cgagtattct 180
 attagatcat gggctttctt attacctttt tactgtattc ttatccagt aaacaaattt 240
 actgacctag aaagtcattg gaactttttc atcacaagag catgcttagg cttttttagt 300
 tttatcatgg aatttaaaact acatcgtgaa attgcaggca gcttggcatt gcaaatacga 360
 aatatttggg ttattttcca attgtttaat cggggtggt tccatgcac tgtggaatta 420
 ttgccttctg cgttgccat gttgttgtat gtaggtgcca ccagacactc tctacgctat 480

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ctgtccactg ggtctacttc taacttttacg aaaagtttag cgtacaattt cctggctagt 540
atactaggct ggccatttgt ttttaatttta agcttgccat tatgttttaca ttaccttttc 600
aaccatagaa ttatttctac catcagaacc gcattcgact gctgtttgat attttcattg 660
actgcatttg ctgtgattgt cactgacagt atattttacg ggaagcttgc tcctgtatca 720
tggaacatct tattttacaa tgtcattaat gcaagtgagg aatctggccc aaatattttc 780
ggggttgagc catggtacta ctatccacta aatttgttac tgaatttccc actgcctgtg 840
ctagtttttag ctattttggg aattttccat ttgagattat ggccattatg ggcattcatta 900
ttcacatgga ttgccgtttt cactcaacaa cctcacaaag aggaaagatt tctctatcca 960
atttacgggt taataacttt gagtgcagt atcgctttt acaaagtgtt gaatctattc 1020
aatagaaagc cgattcttaa aaaagggtata aagttgtcag ttttattaat tgttgcaggc 1080
caggcaatgt cacggatagt ggctttggtg aacaattaca cagctcctat agccgtctac 1140
gagcaatttt cttcactaaa tcaagggtgt gtgaaggcac cggtagttaa tgtatgtacg 1200
ggacgtgaat ggtatcactt cccaagttct ttctgtctgc cagataatca taggctaaaa 1260
tttgttaaat ctggatttga tggctctctt ccagggtgatt ttccagagag tggttctatt 1320
ttcaaaaaga ttagaacttt acctaaggga atgaataaca agaatatata tgataccggt 1380
aaagagtggc cgatcactag atgtgattat tttattgaca tcgtcgcccc aataaattta 1440
acaaaagacg ttttcaaccc tctacatctg atggataact ggaataagct ggcattgtgct 1500
gcattcatcg acggtgaaaa ttctaagatt ttgggtagag cattttacgt accggagcca 1560
atcaaccgaa tcatgcaaat agttttacca aaacaatgga atcaagtgtg cggtgttcgt 1620
tacattgatt actgtttgtt tgaaaaacca actgagacta ctaattga 1668

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<210> 51

<211> 555

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 51

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Met Asn Cys Lys Ala Val Thr Ile Ser Leu Leu Leu Leu Leu Phe Leu
  1             5             10             15

```

```

Thr Arg Val Tyr Ile Gln Pro Thr Phe Ser Leu Ile Ser Asp Cys Asp
      20             25             30

```

```

Glu Thr Phe Asn Tyr Trp Glu Pro Leu Asn Leu Leu Val Arg Gly Phe
      35             40             45

```

```

Gly Lys Gln Thr Trp Glu Tyr Ser Pro Glu Tyr Ser Ile Arg Ser Trp
      50             55             60

```

```

Ala Phe Leu Leu Pro Phe Tyr Cys Ile Leu Tyr Pro Val Asn Lys Phe
      65             70             75             80

```

```

Thr Asp Leu Glu Ser His Trp Asn Phe Phe Ile Thr Arg Ala Cys Leu
      85             90             95

```

```

Gly Phe Phe Ser Phe Ile Met Glu Phe Lys Leu His Arg Glu Ile Ala
      100            105            110

```

```

Gly Ser Leu Ala Leu Gln Ile Ala Asn Ile Trp Ile Ile Phe Gln Leu
      115            120            125

```

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Phe Asn Pro Gly Trp Phe His Ala Ser Val Glu Leu Leu Pro Ser Ala
      130            135            140

```

```

Val Ala Met Leu Leu Tyr Val Gly Ala Thr Arg His Ser Leu Arg Tyr
      145            150            155            160

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Leu Ser Thr Gly Ser Thr Ser Asn Phe Thr Lys Ser Leu Ala Tyr Asn
 165 170 175
 Phe Leu Ala Ser Ile Leu Gly Trp Pro Phe Val Leu Ile Leu Ser Leu
 180 185 190
 Pro Leu Cys Leu His Tyr Leu Phe Asn His Arg Ile Ile Ser Thr Ile
 195 200 205
 Arg Thr Ala Phe Asp Cys Cys Leu Ile Phe Ser Leu Thr Ala Phe Ala
 210 215 220
 Val Ile Val Thr Asp Ser Ile Phe Tyr Gly Lys Leu Ala Pro Val Ser
 225 230 235 240
 Trp Asn Ile Leu Phe Tyr Asn Val Ile Asn Ala Ser Glu Glu Ser Gly
 245 250 255
 Pro Asn Ile Phe Gly Val Glu Pro Trp Tyr Tyr Tyr Pro Leu Asn Leu
 260 265 270
 Leu Leu Asn Phe Pro Leu Pro Val Leu Val Leu Ala Ile Leu Gly Ile
 275 280 285
 Phe His Leu Arg Leu Trp Pro Leu Trp Ala Ser Leu Phe Thr Trp Ile
 290 295 300
 Ala Val Phe Thr Gln Gln Pro His Lys Glu Glu Arg Phe Leu Tyr Pro
 305 310 315 320
 Ile Tyr Gly Leu Ile Thr Leu Ser Ala Ser Ile Ala Phe Tyr Lys Val
 325 330 335
 Leu Asn Leu Phe Asn Arg Lys Pro Ile Leu Lys Lys Gly Ile Lys Leu
 340 345 350
 Ser Val Leu Leu Ile Val Ala Gly Gln Ala Met Ser Arg Ile Val Ala
 355 360 365
 Leu Val Asn Asn Tyr Thr Ala Pro Ile Ala Val Tyr Glu Gln Phe Ser
 370 375 380
 Ser Leu Asn Gln Gly Gly Val Lys Ala Pro Val Val Asn Val Cys Thr
 385 390 395 400
 Gly Arg Glu Trp Tyr His Phe Pro Ser Ser Phe Leu Leu Pro Asp Asn
 405 410 415
 His Arg Leu Lys Phe Val Lys Ser Gly Phe Asp Gly Leu Leu Pro Gly
 420 425 430
 Asp Phe Pro Glu Ser Gly Ser Ile Phe Lys Lys Ile Arg Thr Leu Pro
 435 440 445
 Lys Gly Met Asn Asn Lys Asn Ile Tyr Asp Thr Gly Lys Glu Trp Pro
 450 455 460

Ile Thr Arg Cys Asp Tyr Phe Ile Asp Ile Val Ala Pro Ile Asn Leu
465 470 475 480

Thr Lys Asp Val Phe Asn Pro Leu His Leu Met Asp Asn Trp Asn Lys
485 490 495

Leu Ala Cys Ala Ala Phe Ile Asp Gly Glu Asn Ser Lys Ile Leu Gly
500 505 510

Arg Ala Phe Tyr Val Pro Glu Pro Ile Asn Arg Ile Met Gln Ile Val
515 520 525

Leu Pro Lys Gln Trp Asn Gln Val Tyr Gly Val Arg Tyr Ile Asp Tyr
530 535 540

Cys Leu Phe Glu Lys Pro Thr Glu Thr Thr Asn
545 550 555

<210> 52

<211> 600

<212> DNA

<213> Pichia pastoris

<400> 52

tggecttccct gtctgctcga tacttccttt tacagtaacc aacatacatg ttctccaaca 60
tgctcttgta tgtattggcc tattctatct tgagacttga tatcaacctt ctatggtatt 120
atttcagact gtgatgaagt gttcaactac tgggagccac tcaacttcat gcttagaggg 180
tttggaaaac agacttggga gtattctcca gagtatgcca tccgatcttg gtcctatcta 240
gtgccacttt ggatagcagc ctatccacca ttgttccctgg atatcccttc ttactacttt 300
ttctactttt tcagactact gctgggttatt ttttcattgg ttgcagaagt caagttgtac 360
catagtttga agaaaaatgt cagcagtaag atcagtttct ggtaccttct atttacaacc 420
gttgctccag gaatgtctca tagcacgata gccttattac catcctcttt tgctatgggt 480
tgtcacactt ttgccattag atacgtcatt gattacctac aattaccaac attaatgcgc 540
acaatcagag agactgctgc catctcacca gctcacaac aacaactagc caactctctc 600

<210> 53

<211> 199

<212> PRT

<213> Pichia pastoris

<400> 53

Trp Pro Ser Cys Leu Leu Asp Thr Ser Phe Tyr Ser Asn Gln His Thr
1 5 10 15

Cys Ser Pro Thr Cys Ser Cys Met Tyr Trp Pro Ile Leu Ser Asp Leu
20 25 30

Ile Ser Thr Phe Tyr Gly Ile Ile Ser Asp Cys Asp Glu Val Phe Asn
35 40 45

Tyr Trp Glu Pro Leu Asn Phe Met Leu Arg Gly Phe Gly Lys Gln Thr
50 55 60

Trp Glu Tyr Ser Pro Glu Tyr Ala Ile Arg Ser Trp Ser Tyr Leu Val
65 70 75 80

[illegible]

<210> 54

<211> 140

<212> PRT

<213> Pichia pastoris

<220>

<221> MOD_RES

<222> (65) .. (71)

<223> Variable amino acid

<400> 54

<400> 54
Ile Ser Thr Phe Tyr Gly Ile Ile Ser Asp Cys Asp Glu Val Phe Asn
1 5 10 15

Tyr Trp Glu Pro Leu Asn Phe Met Leu Arg Gly Phe Gly Lys Gln Thr
20 25 30

Trp Glu Tyr Ser Pro Glu Tyr Ala Ile Arg Ser Trp Ser Tyr Leu Val
35 40 45

Pro Leu Trp Ile Ala Gly Tyr Pro Pro Leu Phe Leu Asp Ile Pro Ser
50 55 60

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Arg Leu Leu Leu Val Ile Phe Ser Leu
65 70 75 80

Val Ala Glu Val Lys Leu Tyr His Ser Leu Lys Lys Asn Val Ser Ser
85 90 95

Lys Ile Ser Phe Trp Tyr Leu Leu Phe Thr Thr Val Ala Pro Gly Met
100 105 110

Ser His Ser Thr Ile Ala Leu Leu Pro Ser Ser Phe Ala Met Val Cys
 115 120 125

His Thr Phe Ala Ile Arg Tyr Val Ile Asp Tyr Leu
 130 135 140

<210> 55

<211> 141

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 55

Ile Gln Pro Thr Phe Ser Leu Ile Ser Asp Cys Asp Glu Thr Phe Asn
 1 5 10 15

Tyr Trp Glu Pro Leu Asn Leu Leu Val Arg Gly Phe Gly Lys Gln Thr
 20 25 30

Trp Glu Tyr Ser Pro Glu Tyr Ser Ile Arg Ser Trp Ala Phe Leu Leu
 35 40 45

Pro Phe Tyr Cys Ile Leu Tyr Pro Val Asn Lys Phe Thr Asp Leu Glu
 50 55 60

Ser His Trp Asn Phe Phe Ile Thr Arg Ala Cys Leu Gly Phe Phe Ser
 65 70 75 80

Phe Ile Met Glu Phe Lys Leu His Arg Glu Ile Ala Gly Ser Leu Ala
 85 90 95

Leu Gln Ile Ala Asn Ile Trp Ile Ile Phe Gln Leu Phe Asn Pro Gly
 100 105 110

Trp Phe His Ala Ser Val Glu Leu Leu Pro Ser Ala Val Ala Met Leu
 115 120 125

Leu Tyr Val Gly Ala Thr Arg His Ser Leu Arg Tyr Leu
 130 135 140

<210> 56

<211> 127

<212> PRT

<213> *Pichia pastoris*

<220>

<221> MOD_RES

<222> (66)..(72)

<223> Variable amino acid

<400> 56

Leu Ile Ser Thr Phe Tyr Gly Ile Ile Ser Asp Cys Asp Glu Val Phe
 1 5 10 15

Asn Tyr Trp Glu Pro Leu Asn Phe Met Leu Arg Gly Phe Gly Lys Gln
 20 25 30

41/93

Thr Trp Glu Tyr Ser Pro Glu Tyr Ala Ile Arg Ser Trp Ser Tyr Leu
35 40 45
Val Pro Leu Trp Ile Ala Gly Tyr Pro Pro Leu Phe Leu Asp Ile Pro
50 55 60
Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Arg Leu Leu Leu Val Ile Phe Ser
65 70 75 80
Leu Val Ala Glu Val Lys Leu Tyr His Ser Leu Lys Lys Asn Val Ser
85 90 95
Ser Lys Ile Ser Phe Trp Tyr Leu Leu Phe Thr Thr Val Ala Pro Gly
100 105 110
Met Ser His Ser Thr Ile Ala Leu Leu Pro Ser Ser Phe Ala Met
115 120 125

<210> 57
<211> 127
<212> PRT
<213> Anopheles gambiae

<400> 57
Leu Gln Ser Ala Leu Tyr Ser Ile Ile Ser Asp Cys Asp Glu Thr Tyr
1 5 10 15
Asn Tyr Trp Glu Pro Leu His Tyr Leu Leu Lys Gly Lys Gly Phe Gln
20 25 30
Thr Trp Glu Tyr Ser Pro Glu Phe Ala Leu Arg Ser Tyr Ser Tyr Leu
35 40 45
Trp Leu His Gly Leu Pro Ala Lys Val Leu Gln Leu Met Thr Asp Asn
50 55 60
Gly Val Leu Ile Phe Tyr Phe Val Arg Cys Leu Leu Ala Val Thr Cys
65 70 75 80
Ala Leu Leu Glu Tyr Arg Leu Tyr Arg Ile Leu Gly Arg Lys Cys Gly
85 90 95
Gly Gly Val Ala Ser Leu Trp Leu Leu Phe Gln Leu Thr Ser Ala Gly
100 105 110
Met Phe Ile Ser Ser Ala Ala Leu Leu Pro Ser Ser Phe Ser Met
115 120 125

<210> 58
<211> 157
<212> PRT
<213> Pichia pastoris

<220>
<221> MOD_RES

<222> (66)..(72)
 <223> Variable amino acid

<400> 58

Leu Ile Ser Thr Phe Tyr Gly Ile Ile Ser Asp Cys Asp Glu Val Phe
 1 5 10 15
 Asn Tyr Trp Glu Pro Leu Asn Phe Met Leu Arg Gly Phe Gly Lys Gln
 20 25 30
 Thr Trp Glu Tyr Ser Pro Glu Tyr Ala Ile Arg Ser Trp Ser Tyr Leu
 35 40 45
 Val Pro Leu Trp Ile Ala Gly Tyr Pro Pro Leu Phe Leu Asp Ile Pro
 50 55 60
 Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Arg Leu Leu Leu Val Ile Phe Ser
 65 70 75 80
 Leu Val Ala Glu Val Lys Leu Tyr His Ser Leu Lys Lys Asn Val Ser
 85 90 95
 Ser Lys Ile Ser Phe Trp Tyr Leu Leu Phe Thr Thr Val Ala Pro Gly
 100 105 110
 Met Ser His Ser Thr Ile Ala Leu Leu Pro Ser Ser Phe Ala Met Val
 115 120 125
 Cys His Thr Phe Ala Ile Arg Tyr Val Ile Asp Tyr Leu Gln Leu Pro
 130 135 140
 Thr Leu Met Arg Thr Ile Arg Glu Thr Ala Ala Ile Ser
 145 150 155

<210> 59

<211> 154

<212> PRT

<213> Schizosaccharomyces pombe

<400> 59

Leu Thr Ser Ala Ser Phe Arg Val Ile Asp Asp Cys Asp Glu Val Tyr
 1 5 10 15
 Asn Tyr Trp Glu Pro Leu His Tyr Leu Leu Tyr Gly Tyr Gly Leu Gln
 20 25 30
 Thr Trp Glu Tyr Ser Pro Glu Tyr Ala Ile Arg Ser Trp Phe Tyr Ile
 35 40 45
 Ala Leu His Ala Val Pro Gly Phe Leu Ala Arg Gly Leu Gly Leu Ser
 50 55 60
 Arg Leu His Val Phe Tyr Phe Ile Arg Gly Val Leu Ala Cys Phe Ser
 65 70 75 80
 Ala Phe Cys Glu Thr Asn Leu Ile Leu Ala Val Ala Arg Asn Phe Asn
 85 90 95

Arg Ala Val Ala Leu His Leu Thr Ser Val Leu Phe Val Asn Ser Gly
 100 105 110

Met Trp Ser Ala Ser Thr Ser Phe Leu Pro Ser Ser Phe Ala Met Asn
 115 120 125

Met Val Thr Leu Ala Leu Ser Ala Gln Leu Ser Pro Pro Ser Thr Lys
 130 135 140

Arg Thr Val Lys Val Val Ser Phe Ile Thr
 145 150

<210> 60

<211> 141

<212> PRT

<213> Pichia pastoris

<220>

<221> MOD_RES

<222> (80)..(86)

<223> Variable amino acid

<400> 60

Ser Pro Thr Cys Ser Cys Met Tyr Trp Pro Ile Leu Ser Asp Leu Ile
 1 5 10 15

Ser Thr Phe Tyr Gly Ile Ile Ser Asp Cys Asp Glu Val Phe Asn Tyr
 20 25 30

Trp Glu Pro Leu Asn Phe Met Leu Arg Gly Phe Gly Lys Gln Thr Trp
 35 40 45

Glu Tyr Ser Pro Glu Tyr Ala Ile Arg Ser Trp Ser Tyr Leu Val Pro
 50 55 60

Leu Trp Ile Ala Gly Tyr Pro Pro Leu Phe Leu Asp Ile Pro Ser Xaa
 65 70 75 80

Xaa Xaa Xaa Xaa Xaa Xaa Arg Leu Leu Leu Val Ile Phe Ser Leu Val
 85 90 95

Ala Glu Val Lys Leu Tyr His Ser Leu Lys Lys Asn Val Ser Ser Lys
 100 105 110

Ile Ser Phe Trp Tyr Leu Leu Phe Thr Thr Val Ala Pro Gly Met Ser
 115 120 125

His Ser Thr Ile Ala Leu Leu Pro Ser Ser Phe Ala Met
 130 135 140

<210> 61

<211> 143

<212> PRT

<213> Mus musculus

<400> 61

Ala Pro Glu Gly Ser Thr Ala Phe Lys Cys Leu Leu Ser Ala Arg Leu
 1 5 10 15

Cys Ala Ala Leu Leu Ser Asn Ile Ser Asp Cys Asp Glu Thr Phe Asn
 20 25 30

Tyr Trp Glu Pro Thr His Tyr Leu Ile Tyr Gly Lys Gly Phe Gln Thr
 35 40 45

Trp Glu Tyr Ser Pro Val Tyr Ala Ile Arg Ser Tyr Ala Tyr Leu Leu
 50 55 60

Leu His Ala Trp Pro Ala Ala Phe His Ala Arg Ile Leu Gln Thr Asn
 65 70 75 80

Lys Ile Leu Val Phe Tyr Phe Leu Arg Cys Leu Leu Ala Phe Val Ser
 85 90 95

Cys Val Cys Glu Leu Tyr Phe Tyr Lys Ala Val Cys Lys Lys Phe Gly
 100 105 110

Leu His Val Ser Arg Met Met Leu Ala Phe Leu Val Leu Ser Thr Gly
 115 120 125

Met Phe Cys Ser Ser Ser Ala Phe Leu Pro Ser Ser Phe Cys Met
 130 135 140

<210> 62

<211> 141

<212> PRT

<213> *Pichia pastoris*

<220>

<221> MOD_RES

<222> (80)..(86)

<223> Variable amino acid

<400> 62

Ser Pro Thr Cys Ser Cys Met Tyr Trp Pro Ile Leu Ser Asp Leu Ile
 1 5 10 15

Ser Thr Phe Tyr Gly Ile Ile Ser Asp Cys Asp Glu Val Phe Asn Tyr
 20 25 30

Trp Glu Pro Leu Asn Phe Met Leu Arg Gly Phe Gly Lys Gln Thr Trp
 35 40 45

Glu Tyr Ser Pro Glu Tyr Ala Ile Arg Ser Trp Ser Tyr Leu Val Pro
 50 55 60

Leu Trp Ile Ala Gly Tyr Pro Pro Leu Phe Leu Asp Ile Pro Ser Xaa
 65 70 75 80

Xaa Xaa Xaa Xaa Xaa Xaa Arg Leu Leu Leu Val Ile Phe Ser Leu Val
 85 90 95

Ala Glu Val Lys Leu Tyr His Ser Leu Lys Lys Asn Val Ser Ser Lys
 100 105 110

Ile Ser Phe Trp Tyr Leu Leu Phe Thr Thr Val Ala Pro Gly Met Ser
 115 120 125

His Ser Thr Ile Ala Leu Leu Pro Ser Ser Phe Ala Met
 130 135 140

<210> 63

<211> 143

<212> PRT

<213> Homo sapiens

<400> 63

Ala Pro Glu Gly Ser Thr Ala Phe Lys Cys Leu Leu Ser Ala Arg Leu
 1 5 10 15

Cys Ala Ala Leu Leu Ser Asn Ile Ser Asp Cys Asp Glu Thr Phe Asn
 20 25 30

Tyr Trp Glu Pro Thr His Tyr Leu Ile Tyr Gly Glu Gly Phe Gln Thr
 35 40 45

Trp Glu Tyr Ser Pro Ala Tyr Ala Ile Arg Ser Tyr Ala Tyr Leu Leu
 50 55 60

Leu His Ala Trp Pro Ala Ala Phe His Ala Arg Ile Leu Gln Thr Asn
 65 70 75 80

Lys Ile Leu Val Phe Tyr Phe Leu Arg Cys Leu Leu Ala Phe Val Ser
 85 90 95

Cys Ile Cys Glu Leu Tyr Phe Tyr Lys Ala Val Cys Lys Lys Phe Gly
 100 105 110

Leu His Val Ser Arg Met Met Leu Ala Phe Leu Val Leu Ser Thr Gly
 115 120 125

Met Phe Cys Ser Ser Ser Ala Phe Leu Pro Ser Ser Phe Cys Met
 130 135 140

<210> 64

<211> 1656

<212> DNA

<213> Saccharomyces cerevisiae

<400> 64

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 tacagcgtat ttgatatctc ccaatatgac cacttgaaat ttcctggagt agtccctaga 180
 acattcgttg gtgctgtgat tattgcaatg ctttcgagac cttatcttta cttgagttct 240
 ttgatccaaa cttccaggcc tacgtctata gatgttcaat tggtcgtag ggggattgtt 300
 ggcctcacca atgggctttc ttttatctat ttaaagaatt gtttgcaaga tatgtttgat 360
 gaaatcactg aaaagaaaaa ggaagaaaat gaagacaagg atatatacat ttacgatagc 420
 gctggtacat ggtttctttt atttttaatt ggcagtttcc acctcatggt ctacagcact 480

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aggactctgc ctaatthtgt catgactctg cctctaacca acgtcgcatt ggggtgggtt 540
ttattgggtc gttataatgc agctatatct ctatctgcgc tcgtggcaat tgtatttaga 600
ctggaagtgt cagctctcag tgctgggtatt gctctattta gcgtcatctt caagaagatt 660
tctttattcg atgctatcaa attcgggtatc tttggcttgg gacttgggtc cgccatcagt 720
atcacggttg attcatatth ctggcaagaa tgggtgtctac ctgaggtaga tggtttcttg 780
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tataaattag cacctgcaaa attaaaaatt gtctcactag catctctttt ccacattatc 960
gtcttatact ttcaacctca caaagaatgg agattcatca tctacgtctg tccatctatc 1020
atgttgctag gtgccacagg agcagcacat ctatgggaga atatgaaagt aaaaaagatt 1080
accaatgttt tatgtttggc tatattggcc ttatctataa tgacctcctt tttcatttca 1140
atggcgttct tgtatatc aagaatgaat tatccaggcg gcgaggcttt aacttctttt 1200
aatgacatga ttgtggaaaa aaatattaca aacgctacag ttcatatcag catacctcct 1260
tgcatgacag gtgtcacttt atttggtgaa ttgaactacg gtgtgtacgg catcaattac 1320
gataagactg aaaatacgac tttactgcag gaaatgtggc cctcctttga tttcttgatc 1380
acccacgagc caaccgcctc tcaattgcc a ttcgagaata agactacca ccatggggag 1440
ctagtttaaca caacaaagat gtttactgga tttgacccaa cctacattaa gaactttgtt 1500
ttccaagaga gagtgaatgt tttgtctcta ctcaaacaga tcatttttga caagaccctt 1560
accgtttttt tgaaagaatt gacggccaat tcgattgtta aaagcgatgt cttcttcacc 1620
tataagagaa tcaaacaaga tgaaaaaact gattga 1656

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<210> 65

<211> 551

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 65

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Met Arg Trp Ser Val Leu Asp Thr Val Leu Leu Thr Val Ile Ser Phe
 1             5             10             15

```

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His Leu Ile Gln Ala Pro Phe Thr Lys Val Glu Glu Ser Phe Asn Ile
      20             25             30

```

```

Gln Ala Ile His Asp Ile Leu Thr Tyr Ser Val Phe Asp Ile Ser Gln
      35             40             45

```

```

Tyr Asp His Leu Lys Phe Pro Gly Val Val Pro Arg Thr Phe Val Gly
      50             55             60

```

```

Ala Val Ile Ile Ala Met Leu Ser Arg Pro Tyr Leu Tyr Leu Ser Ser
      65             70             75             80

```

```

Leu Ile Gln Thr Ser Arg Pro Thr Ser Ile Asp Val Gln Leu Val Val
      85             90             95

```

```

Arg Gly Ile Val Gly Leu Thr Asn Gly Leu Ser Phe Ile Tyr Leu Lys
     100             105             110

```

```

Asn Cys Leu Gln Asp Met Phe Asp Glu Ile Thr Glu Lys Lys Lys Glu
     115             120             125

```

```

Glu Asn Glu Asp Lys Asp Ile Tyr Ile Tyr Asp Ser Ala Gly Thr Trp
     130             135             140

```

```

Phe Leu Leu Phe Leu Ile Gly Ser Phe His Leu Met Phe Tyr Ser Thr
     145             150             155             160

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Arg Thr Leu Pro Asn Phe Val Met Thr Leu Pro Leu Thr Asn Val Ala
 165 170 175
 Leu Gly Trp Val Leu Leu Gly Arg Tyr Asn Ala Ala Ile Phe Leu Ser
 180 185 190
 Ala Leu Val Ala Ile Val Phe Arg Leu Glu Val Ser Ala Leu Ser Ala
 195 200 205
 Gly Ile Ala Leu Phe Ser Val Ile Phe Lys Lys Ile Ser Leu Phe Asp
 210 215 220
 Ala Ile Lys Phe Gly Ile Phe Gly Leu Gly Leu Gly Ser Ala Ile Ser
 225 230 235 240
 Ile Thr Val Asp Ser Tyr Phe Trp Gln Glu Trp Cys Leu Pro Glu Val
 245 250 255
 Asp Gly Phe Leu Phe Asn Val Val Ala Gly Tyr Ala Ser Lys Trp Gly
 260 265 270
 Val Glu Pro Val Thr Ala Tyr Phe Thr His Tyr Leu Arg Met Met Phe
 275 280 285
 Met Pro Pro Thr Val Leu Leu Leu Asn Tyr Phe Gly Tyr Lys Leu Ala
 290 295 300
 Pro Ala Lys Leu Lys Ile Val Ser Leu Ala Ser Leu Phe His Ile Ile
 305 310 315 320
 Val Leu Ser Phe Gln Pro His Lys Glu Trp Arg Phe Ile Ile Tyr Ala
 325 330 335
 Val Pro Ser Ile Met Leu Leu Gly Ala Thr Gly Ala Ala His Leu Trp
 340 345 350
 Glu Asn Met Lys Val Lys Lys Ile Thr Asn Val Leu Cys Leu Ala Ile
 355 360 365
 Leu Pro Leu Ser Ile Met Thr Ser Phe Phe Ile Ser Met Ala Phe Leu
 370 375 380
 Tyr Ile Ser Arg Met Asn Tyr Pro Gly Gly Glu Ala Leu Thr Ser Phe
 385 390 395 400
 Asn Asp Met Ile Val Glu Lys Asn Ile Thr Asn Ala Thr Val His Ile
 405 410 415
 Ser Ile Pro Pro Cys Met Thr Gly Val Thr Leu Phe Gly Glu Leu Asn
 420 425 430
 Tyr Gly Val Tyr Gly Ile Asn Tyr Asp Lys Thr Glu Asn Thr Thr Leu
 435 440 445
 Leu Gln Glu Met Trp Pro Ser Phe Asp Phe Leu Ile Thr His Glu Pro
 450 455 460

Thr Ala Ser Gln Leu Pro Phe Glu Asn Lys Thr Thr Asn His Trp Glu
465 470 475 480

Leu Val Asn Thr Thr Lys Met Phe Thr Gly Phe Asp Pro Thr Tyr Ile
485 490 495

Lys Asn Phe Val Phe Gln Glu Arg Val Asn Val Leu Ser Leu Leu Lys
500 505 510

Gln Ile Ile Phe Asp Lys Thr Pro Thr Val Phe Leu Lys Glu Leu Thr
515 520 525

Ala Asn Ser Ile Val Lys Ser Asp Val Phe Phe Thr Tyr Lys Arg Ile
530 535 540

Lys Gln Asp Glu Lys Thr Asp
545 550

<210> 66

<211> 840

<212> DNA

<213> *Pichia pastoris*

<400> 66

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tcggtcgaga atgataactg aagaactcaa aatctctcac actttcatcg ttactgtact 60
ggcaatcatt gcatttcagc ctcataaaga atggagattt atagtttaca ttgttccacc 120
acttgatcgc accatatcta cagtacttgc acaactaccc aggagattca caatcggtcaa 180
agttgctggt tttctcctaa gtttcgggtc tttgctcata tccctgtcgt ttcttttcat 240
ctcatcgat aactaccctg ggggtgaagc tttacagcat ttgaacgaga aactccttct 300
actggaccaa agttccctac ctggtgatat taagggtcat atggatgtcc ctgcatgcat 360
gactgggggtg actttatttg gttacttgga taactcaaaa ttgaacaatt taagaattgt 420
ctatgataaa acagaagacg agtcgctgga cacaatctgg gattctttca attatgtcat 480
ctccgaaatt gacttggatt ctgcgactgc tcccaaattg gagggggatt ggctgaagat 540
tgatgttgtc caaggctaca acggcatcaa taaacaatct atcaaaaata caattttcaa 600
ttatggaata cttaaacgga tgataagaga cgcaaccaa cttgatgttg gatttattcg 660
tacgggtctt cgatccttca taaaatttga tgataaatta ttcatttatg agaggagcag 720
tcaaacctga aaatatatac ctcatgtgtt caatttggtg taaagagtgt ggcggataga 780
cttcttgtaa atcaggaaaag ctacaattcc aattgctgca aaaaatacca atgcccataa 840
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<210> 67

<211> 239

<212> PRT

<213> *Pichia pastoris*

<400> 67

Arg Met Ile Thr Glu Glu Leu Lys Ile Ser His Thr Phe Ile Val Thr
1 5 10 15

Val Leu Ala Ile Ile Ala Phe Gln Pro His Lys Glu Trp Arg Phe Ile
20 25 30

Val Tyr Ile Val Pro Pro Leu Val Ile Thr Ile Ser Thr Val Leu Ala
35 40 45

Gln Leu Pro Arg Arg Phe Thr Ile Val Lys Val Ala Val Phe Leu Leu
50 55 60

Ser Phe Gly Ser Leu Leu Ile Ser Leu Ser Phe Leu Phe Ile Ser Ser
 65 70 75 80
 Tyr Asn Tyr Pro Gly Gly Glu Ala Leu Gln His Leu Asn Glu Lys Leu
 85 90 95
 Leu Leu Leu Asp Gln Ser Ser Leu Pro Val Asp Ile Lys Val His Met
 100 105 110
 Asp Val Pro Ala Cys Met Thr Gly Val Thr Leu Phe Gly Tyr Leu Asp
 115 120 125
 Asn Ser Lys Leu Asn Asn Leu Arg Ile Val Tyr Asp Lys Thr Glu Asp
 130 135 140
 Glu Ser Leu Asp Thr Ile Trp Asp Ser Phe Asn Tyr Val Ile Ser Glu
 145 150 155 160
 Ile Asp Leu Asp Ser Ser Thr Ala Pro Lys Trp Glu Gly Asp Trp Leu
 165 170 175
 Lys Ile Asp Val Val Gln Gly Tyr Asn Gly Ile Asn Lys Gln Ser Ile
 180 185 190
 Lys Asn Thr Ile Phe Asn Tyr Gly Ile Leu Lys Arg Met Ile Arg Asp
 195 200 205
 Ala Thr Lys Leu Asp Val Gly Phe Ile Arg Thr Val Phe Arg Ser Phe
 210 215 220
 Ile Lys Phe Asp Asp Lys Leu Phe Ile Tyr Glu Arg Ser Ser Gln
 225 230 235

<210> 68

<211> 239

<212> PRT

<213> *Pichia pastoris*

<220>

<221> MOD_RES

<222> (62)..(80)

<223> Variable amino acid

<400> 68

Arg Met Ile Thr Glu Glu Leu Lys Ile Ser His Thr Phe Ile Val Thr
 1 5 10 15

Val Leu Ala Ile Ile Ala Phe Gln Pro His Lys Glu Trp Arg Phe Ile
 20 25 30

Val Tyr Ile Val Pro Pro Leu Val Ile Thr Ile Ser Thr Val Leu Ala
 35 40 45

Gln Leu Pro Arg Arg Phe Thr Ile Val Lys Val Ala Val Xaa Xaa Xaa
 50 55 60

50/93

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65 70 75 80

Tyr Asn Tyr Pro Gly Gly Glu Ala Leu Gln His Leu Asn Glu Lys Leu
85 90 95

Leu Leu Leu Asp Gln Ser Ser Leu Pro Val Asp Ile Lys Val His Met
100 105 110

Asp Val Pro Ala Cys Met Thr Gly Val Thr Leu Phe Gly Tyr Leu Asp
115 120 125

Asn Ser Lys Leu Asn Asn Leu Arg Ile Val Tyr Asp Lys Thr Glu Asp
130 135 140

Glu Ser Leu Asp Thr Ile Trp Asp Ser Phe Asn Tyr Val Ile Ser Glu
145 150 155 160

Ile Asp Leu Asp Ser Ser Thr Ala Pro Lys Trp Glu Gly Asp Trp Leu
165 170 175

Lys Ile Asp Val Val Gln Gly Tyr Asn Gly Ile Asn Lys Gln Ser Ile
180 185 190

Lys Asn Thr Ile Phe Asn Tyr Gly Ile Leu Lys Arg Met Ile Arg Asp
195 200 205

Ala Thr Lys Leu Asp Val Gly Phe Ile Arg Thr Val Phe Arg Ser Phe
210 215 220

Ile Lys Phe Asp Asp Lys Leu Phe Ile Tyr Glu Arg Ser Ser Gln
225 230 235

<210> 69

<211> 245

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 69

Lys Leu Ala Pro Ala Lys Leu Lys Ile Val Ser Leu Ala Ser Leu Phe
1 5 10 15

His Ile Ile Val Leu Ser Phe Gln Pro His Lys Glu Trp Arg Phe Ile
20 25 30

Ile Tyr Ala Val Pro Ser Ile Met Leu Leu Gly Ala Thr Gly Ala Ala
35 40 45

His Leu Trp Glu Asn Met Lys Val Lys Lys Ile Thr Asn Val Leu Cys
50 55 60

Leu Ala Ile Leu Pro Leu Ser Ile Met Thr Ser Phe Phe Ile Ser Met
65 70 75 80

Ala Phe Leu Tyr Ile Ser Arg Met Asn Tyr Pro Gly Gly Glu Ala Leu
85 90 95

51/93

Thr Ser Phe Asn Asp Met Ile Val Glu Lys Asn Ile Thr Asn Ala Thr
100 105 110

Val His Ile Ser Ile Pro Pro Cys Met Thr Gly Val Thr Leu Phe Gly
115 120 125

Glu Leu Asn Tyr Gly Val Tyr Gly Ile Asn Tyr Asp Lys Thr Glu Asn
130 135 140

Thr Thr Leu Leu Gln Glu Met Trp Pro Ser Phe Asp Phe Leu Ile Thr
145 150 155 160

His Glu Pro Thr Ala Ser Gln Leu Pro Phe Glu Asn Lys Thr Thr Asn
165 170 175

His Trp Glu Leu Val Asn Thr Thr Lys Met Phe Thr Gly Phe Asp Pro
180 185 190

Thr Tyr Ile Lys Asn Phe Val Phe Gln Glu Arg Val Asn Val Leu Ser
195 200 205

Leu Leu Lys Gln Ile Ile Phe Asp Lys Thr Pro Thr Val Phe Leu Lys
210 215 220

Glu Leu Thr Ala Asn Ser Ile Val Lys Ser Asp Val Phe Phe Thr Tyr
225 230 235 240

Lys Arg Ile Lys Gln
245

<210> 70

<211> 141

<212> PRT

<213> Pichia pastoris

<220>

<221> MOD_RES

<222> (43)..(61)

<223> Variable amino acid

<400> 70

Ile Ile Ala Phe Gln Pro His Lys Glu Trp Arg Phe Ile Val Tyr Ile
1 5 10 15

Val Pro Pro Leu Val Ile Thr Ile Ser Thr Val Leu Ala Gln Leu Pro
20 25 30

Arg Arg Phe Thr Ile Val Lys Val Ala Val Xaa Xaa Xaa Xaa Xaa Xaa
35 40 45

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Asn Tyr
50 55 60

Pro Gly Gly Glu Ala Leu Gln His Leu Asn Glu Lys Leu Leu Leu Leu
65 70 75 80

Asp Gln Ser Ser Leu Pro Val Asp Ile Lys Val His Met Asp Val Pro
 85 90 95

Ala Cys Met Thr Gly Val Thr Leu Phe Gly Tyr Leu Asp Asn Ser Lys
 100 105 110

Leu Asn Asn Leu Arg Ile Val Tyr Asp Lys Thr Glu Asp Glu Ser Leu
 115 120 125

Asp Thr Ile Trp Asp Ser Phe Asn Tyr Val Ile Ser Glu
 130 135 140

<210> 71

<211> 137

<212> PRT

<213> Schizosaccharomyces pombe

<400> 71

Val Tyr Ser Phe Leu Gly His Lys Glu Trp Arg Phe Ile Ile Tyr Ser
 1 5 10 15

Ile Pro Trp Phe Asn Ala Ala Ser Ala Ile Gly Ala Ser Leu Cys Phe
 20 25 30

Asn Ala Ser Lys Phe Gly Lys Lys Ile Phe Glu Ile Leu Arg Leu Met
 35 40 45

Phe Phe Ser Gly Ile Ile Phe Gly Phe Ile Gly Ser Ser Phe Leu Leu
 50 55 60

Tyr Val Phe Gln Tyr Ala Tyr Pro Gly Gly Leu Ala Leu Thr Arg Leu
 65 70 75 80

Tyr Glu Ile Glu Asn His Pro Gln Val Ser Val His Met Asp Val Tyr
 85 90 95

Pro Cys Met Thr Gly Ile Thr Arg Phe Ser Gln Leu Pro Ser Trp Tyr
 100 105 110

Tyr Asp Lys Thr Glu Asp Pro Lys Met Leu Ser Asn Ser Leu Phe Ile
 115 120 125

Ser Gln Phe Asp Tyr Leu Ile Thr Glu
 130 135

<210> 72

<211> 143

<212> PRT

<213> Pichia pastoris

<220>

<221> MOD_RES

<222> (45)..(63)

<223> Variable amino acid

<400> 72

Leu Ala Ile Ile Ala Phe Gln Pro His Lys Glu Trp Arg Phe Ile Val
 1 5 10 15
 Tyr Ile Val Pro Pro Leu Val Ile Thr Ile Ser Thr Val Leu Ala Gln
 20 25 30
 Leu Pro Arg Arg Phe Thr Ile Val Lys Val Ala Val Xaa Xaa Xaa Xaa
 35 40 45
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
 50 55 60
 Asn Tyr Pro Gly Gly Glu Ala Leu Gln His Leu Asn Glu Lys Leu Leu
 65 70 75 80
 Leu Leu Asp Gln Ser Ser Leu Pro Val Asp Ile Lys Val His Met Asp
 85 90 95
 Val Pro Ala Cys Met Thr Gly Val Thr Leu Phe Gly Tyr Leu Asp Asn
 100 105 110
 Ser Lys Leu Asn Asn Leu Arg Ile Val Tyr Asp Lys Thr Glu Asp Glu
 115 120 125
 Ser Leu Asp Thr Ile Trp Asp Ser Phe Asn Tyr Val Ile Ser Glu
 130 135 140

<210> 73

<211> 137

<212> PRT

<213> Homo sapiens

<400> 73

Met Ala Leu Tyr Ser Leu Leu Pro His Lys Glu Leu Arg Phe Ile Ile
 1 5 10 15
 Tyr Ala Phe Pro Met Leu Asn Ile Thr Ala Ala Arg Gly Cys Ser Tyr
 20 25 30
 Leu Leu Asn Asn Tyr Lys Lys Ser Trp Leu Tyr Lys Ala Gly Ser Leu
 35 40 45
 Leu Val Ile Gly His Leu Val Val Asn Ala Ala Tyr Ser Ala Thr Ala
 50 55 60
 Leu Tyr Val Ser His Phe Asn Tyr Pro Gly Gly Val Ala Met Gln Arg
 65 70 75 80
 Leu His Gln Leu Val Pro Pro Gln Thr Asp Val Leu Leu His Ile Asp
 85 90 95
 Val Ala Ala Ala Gln Thr Gly Val Ser Arg Phe Leu Gln Val Asn Ser
 100 105 110
 Ala Trp Arg Tyr Asp Lys Arg Glu Asp Val Gln Pro Gly Thr Gly Met
 115 120 125

Leu Ala Tyr Thr His Ile Leu Met Glu
130 135

<210> 74
<211> 1635
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 74
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ccaatgtatg atttttttagt tccgttttagg ccagtgggga accaatggct gccagaatat 120
attatctttg tatgtgctgt aatactgagg tgcacaattg gacttgggtcc atattctggg 180
aaaggcagtc caccgctgta cggcgatttt gaggctcaga gacattggat ggaaattacg 240
caacattttac cgcttttctaa gtggtactgg tatgatttgc aatactgggg attggactat 300
ccaccattaa cagcatttca ttcgtacctt ctgggcctaa ttggatcttt tttcaatcca 360
tcttggtttg cactagaaaa gtcacgtggc tttgaatccc ccgataatgg cctgaaaaca 420
tatatgcgtt ctactgtcat cattagcgac atattgtttt actttcctgc agtaatatat 480
tttactaagt ggcttggttag atatcgaaac cagtcgcca taggacaatc tattgctggc 540
tcagcgattt tgttccaacc ttcattaatg ctcatgacc atgggcactt tcaatataat 600
tcagtcatgc ttggccttac tgcttatgcc ataaataact tattagatga gtattatgct 660
atggcgccg tttgttttgt cctatccatt tgttttaaac aaatggcatt gtattatgca 720
ccgatttttt ttgcttatct attaatgcta tcattgctgt tccccaaatt taacatagct 780
agattgacgg ttattgcgtt tgcaacactc gcaacttttg ctataatatt tgcgccatta 840
tatttcttgg gaggaggatt aaagaatatt caccaatgta ttcacaggat attccctttt 900
gccaggggca tcttcgaaga caaggttgct aacttctggt gcgttacgaa cgtgtttgta 960
aaatacaagg aaagattcac tatacaacaa ctccagctat attcattgat tgccaccgtg 1020
attggtttct taccagccat gataatgaca ttacttcac ccaaaaagca tcttctccca 1080
tacgtgttaa tcgcatgttc gatgtccttt tttcttttta gctttcaagt acatgagaaa 1140
actatcctca teccactttt gcctattaca ctactctact cctctactga ttggaatgtt 1200
ctatctcttg taagttggat aaacaatgtg gctttgttta cgctatggcc tttgttgaaa 1260
aaggacggtc ttcatttaca gtatgccgta tcttcttacc taagcaattg gctgattgga 1320
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agcagcatca atagcgacta tagaagaaga agcttactgc catataatgt gggttgga 1440
agttttatca taggaacgta tattgctatg ggcttttacc atttcttaga tcaatttgta 1500
gcacctccat cgaaatatcc agacttggtg gtgttggtga actgtgctgt tgggttcatt 1560
tgcttttagc tattttggct atggtcttat tacaagatat tcacttccgg tagcaaatcc 1620
atgaaggact ttagtag 1635

<210> 75
<211> 544
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 75
Met Ala Ile Gly Lys Arg Leu Leu Val Asn Lys Pro Ala Glu Glu Ser
1 5 10 15
Phe Tyr Ala Ser Pro Met Tyr Asp Phe Leu Tyr Pro Phe Arg Pro Val
20 25 30
Gly Asn Gln Trp Leu Pro Glu Tyr Ile Ile Phe Val Cys Ala Val Ile
35 40 45
Leu Arg Cys Thr Ile Gly Leu Gly Pro Tyr Ser Gly Lys Gly Ser Pro
50 55 60

Pro	Leu	Tyr	Gly	Asp	Phe	Glu	Ala	Gln	Arg	His	Trp	Met	Glu	Ile	Thr	
65					70					75					80	
Gln	His	Leu	Pro	Leu	Ser	Lys	Trp	Tyr	Trp	Tyr	Asp	Leu	Gln	Tyr	Trp	
				85					90					95		
Gly	Leu	Asp	Tyr	Pro	Pro	Leu	Thr	Ala	Phe	His	Ser	Tyr	Leu	Leu	Gly	
			100					105					110			
Leu	Ile	Gly	Ser	Phe	Phe	Asn	Pro	Ser	Trp	Phe	Ala	Leu	Glu	Lys	Ser	
		115					120					125				
Arg	Gly	Phe	Glu	Ser	Pro	Asp	Asn	Gly	Leu	Lys	Thr	Tyr	Met	Arg	Ser	
		130				135					140					
Thr	Val	Ile	Ile	Ser	Asp	Ile	Leu	Phe	Tyr	Phe	Pro	Ala	Val	Ile	Tyr	
145					150					155					160	
Phe	Thr	Lys	Trp	Leu	Gly	Arg	Tyr	Arg	Asn	Gln	Ser	Pro	Ile	Gly	Gln	
				165					170					175		
Ser	Ile	Ala	Ala	Ser	Ala	Ile	Leu	Phe	Gln	Pro	Ser	Leu	Met	Leu	Ile	
			180					185					190			
Asp	His	Gly	His	Phe	Gln	Tyr	Asn	Ser	Val	Met	Leu	Gly	Leu	Thr	Ala	
		195					200					205				
Tyr	Ala	Ile	Asn	Asn	Leu	Leu	Asp	Glu	Tyr	Tyr	Ala	Met	Ala	Ala	Val	
	210					215					220					
Cys	Phe	Val	Leu	Ser	Ile	Cys	Phe	Lys	Gln	Met	Ala	Leu	Tyr	Tyr	Ala	
225					230					235					240	
Pro	Ile	Phe	Phe	Ala	Tyr	Leu	Leu	Ser	Arg	Ser	Leu	Leu	Phe	Pro	Lys	
				245					250					255		
Phe	Asn	Ile	Ala	Arg	Leu	Thr	Val	Ile	Ala	Phe	Ala	Thr	Leu	Ala	Thr	
			260					265					270			
Phe	Ala	Ile	Ile	Phe	Ala	Pro	Leu	Tyr	Phe	Leu	Gly	Gly	Gly	Leu	Lys	
		275					280					285				
Asn	Ile	His	Gln	Cys	Ile	His	Arg	Ile	Phe	Pro	Phe	Ala	Arg	Gly	Ile	
	290					295					300					
Phe	Glu	Asp	Lys	Val	Ala	Asn	Phe	Trp	Cys	Val	Thr	Asn	Val	Phe	Val	
305					310					315					320	
Lys	Tyr	Lys	Glu	Arg	Phe	Thr	Ile	Gln	Gln	Leu	Gln	Leu	Tyr	Ser	Leu	
				325					330					335		
Ile	Ala	Thr	Val	Ile	Gly	Phe	Leu	Pro	Ala	Met	Ile	Met	Thr	Leu	Leu	
			340					345					350			
His	Pro	Lys	Lys	His	Leu	Leu	Pro	Tyr	Val	Leu	Ile	Ala	Cys	Ser	Met	
		355					360					365				

Ser Phe Phe Leu Phe Ser Phe Gln Val His Glu Lys Thr Ile Leu Ile
370 375 380

Pro Leu Leu Pro Ile Thr Leu Leu Tyr Ser Ser Thr Asp Trp Asn Val
385 390 395 400

Leu Ser Leu Val Ser Trp Ile Asn Asn Val Ala Leu Phe Thr Leu Trp
405 410 415

Pro Leu Leu Lys Lys Asp Gly Leu His Leu Gln Tyr Ala Val Ser Phe
420 425 430

Leu Leu Ser Asn Trp Leu Ile Gly Asn Phe Ser Phe Ile Thr Pro Arg
435 440 445

Phe Leu Pro Lys Ser Leu Thr Pro Gly Pro Ser Ile Ser Ser Ile Asn
450 455 460

Ser Asp Tyr Arg Arg Arg Ser Leu Leu Pro Tyr Asn Val Val Trp Lys
465 470 475 480

Ser Phe Ile Ile Gly Thr Tyr Ile Ala Met Gly Phe Tyr His Phe Leu
485 490 495

Asp Gln Phe Val Ala Pro Pro Ser Lys Tyr Pro Asp Leu Trp Val Leu
500 505 510

Leu Asn Cys Ala Val Gly Phe Ile Cys Phe Ser Ile Phe Trp Leu Trp
515 520 525

Ser Tyr Tyr Lys Ile Phe Thr Ser Gly Ser Lys Ser Met Lys Asp Leu
530 535 540

<210> 76

<211> 1644

<212> DNA

<213> *Pichia pastoris*

<400> 76

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tcctattccg gcttcaacac ccctccaatg tatggggatt ttgaagctca gaggcattgg 240
atggaaatta ctacgattt atccatagaa aaatgggtact tctacgactt gcaatattgg 300
gggcttgact atcctccctt gacagccttt cattcatact tctttggcaa attaggcagc 360
ttcatcaatc cagcatgggt tgcttttagag gtctccagag gggttgaatc agtggatcta 420
aaatcgtaaa tgagggcgac cgcaattctc agtgagctgt tatgttttat tccagctgtc 480
atttggtatt gtcgttggat gggacttaac tacttcaatc aaaacgccat tgagcaaaact 540
ataatagcgt ctgctattct tttcaatcca tctttaatta tcatagatca tggccacttc 600
cagtacaact cagttatgct aggttttgct ttattatcca tattaatct gttgtacgat 660
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tattatagcc ccatcatggt tttttacatg ctgagtgtga gttgttggtc tttgaaaaaac 780
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ttcccgtttt caagaggctt gtttgaggat aaggtggcca acttttggtg tacaacgaat 960
atactggtaa agtacaaaca gttattcact gacaaaaccc ttactaggat atcgctagta 1020
gcaactttga ttgcaattag tccgtcttgc ttcatcattt ttactcacc aaagaagggt 1080

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ttggacatca tctcaatggg ctgctggatt tctaatttg ccttcttcag catgtggcct 1260
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<210> 77

<211> 547

<212> PRT

<213> *Pichia pastoris*

<400> 77

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Pro Gly Ile Ser Phe Glu Asn Ser Pro Val Phe Asp Phe Leu Ser Pro
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Phe Gly Pro Ala Pro Asn Gln Trp Val Ala Arg Tyr Ile Ile Ile Ile
      35              40              45

Phe Ala Ile Leu Ile Arg Leu Ala Val Gly Leu Gly Ser Tyr Ser Gly
      50              55              60

Phe Asn Thr Pro Pro Met Tyr Gly Asp Phe Glu Ala Gln Arg His Trp
      65              70              75              80

Met Glu Ile Thr Gln His Leu Ser Ile Glu Lys Trp Tyr Phe Tyr Asp
      85              90              95

Leu Gln Tyr Trp Gly Leu Asp Tyr Pro Pro Leu Thr Ala Phe His Ser
      100              105              110

Tyr Phe Phe Gly Lys Leu Gly Ser Phe Ile Asn Pro Ala Trp Phe Ala
      115              120              125

Leu Asp Val Ser Arg Gly Phe Glu Ser Val Asp Leu Lys Ser Tyr Met
      130              135              140

Arg Ala Thr Ala Ile Leu Ser Glu Leu Leu Cys Phe Ile Pro Ala Val
      145              150              155              160

Ile Trp Tyr Cys Arg Trp Met Gly Leu Asn Tyr Phe Asn Gln Asn Ala
      165              170              175

Ile Glu Gln Thr Ile Ile Ala Ser Ala Ile Leu Phe Asn Pro Ser Leu
      180              185              190

Ile Ile Ile Asp His Gly His Phe Gln Tyr Asn Ser Val Met Leu Gly
      195              200              205

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Phe Ala Leu Leu Ser Ile Leu Asn Leu Leu Tyr Asp Asn Phe Ala Leu
 210 215 220
 Ala Ala Ile Phe Phe Val Leu Ser Ile Ser Phe Lys Gln Met Ala Leu
 225 230 235 240
 Tyr Tyr Ser Pro Ile Met Phe Phe Tyr Met Leu Ser Val Ser Cys Trp
 245 250 255
 Pro Leu Lys Asn Phe Asn Leu Leu Arg Leu Ala Thr Ile Ser Ile Ala
 260 265 270
 Val Leu Leu Thr Phe Ala Thr Leu Leu Leu Pro Phe Val Leu Val Asp
 275 280 285
 Gly Met Ser Gln Ile Gly Gln Ile Leu Phe Arg Val Phe Pro Phe Ser
 290 295 300
 Arg Gly Leu Phe Glu Asp Lys Val Ala Asn Phe Trp Cys Thr Thr Asn
 305 310 315 320
 Ile Leu Val Lys Tyr Lys Gln Leu Phe Thr Asp Lys Thr Leu Thr Arg
 325 330 335
 Ile Ser Leu Val Ala Thr Leu Ile Ala Ile Ser Pro Ser Cys Phe Ile
 340 345 350
 Ile Phe Thr His Pro Lys Lys Val Leu Leu Pro Trp Ala Phe Ala Ala
 355 360 365
 Cys Ser Trp Ala Phe Tyr Leu Phe Ser Phe Gln Val His Glu Lys Ser
 370 375 380
 Val Leu Val Pro Leu Met Pro Thr Thr Leu Leu Leu Val Glu Lys Asp
 385 390 395 400
 Leu Asp Ile Ile Ser Met Val Cys Trp Ile Ser Asn Ile Ala Phe Phe
 405 410 415
 Ser Met Trp Pro Leu Leu Lys Arg Asp Gly Leu Ala Leu Glu Tyr Phe
 420 425 430
 Val Leu Gly Ile Leu Ser Asn Trp Leu Ile Gly Asn Leu Asn Trp Ile
 435 440 445
 Ser Lys Trp Leu Val Pro Ser Phe Leu Ile Pro Gly Pro Thr Leu Ser
 450 455 460
 Lys Lys Val Pro Lys Arg Asp Thr Lys Thr Val Val His Thr His Trp
 465 470 475 480
 Phe Trp Gly Ser Val Thr Phe Val Ser Tyr Leu Gly Ala Thr Val Ile
 485 490 495
 Gln Phe Val Asp Trp Leu Tyr Leu Pro Pro Ala Lys Tyr Pro Asp Leu
 500 505 510

Trp Val Ile Leu Asn Thr Thr Leu Ser Phe Ala Cys Phe Gly Leu Phe
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Trp Leu Trp Ile Asn Tyr Asn Leu Tyr Ile Leu Arg Asp Phe Lys Leu
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Lys Asp Ala
 545

<210> 78
 <211> 527
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 <213> Pichia pastoris

<220>
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 <222> (23)..(37)
 <223> Variable amino acid

<220>
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 <222> (366)..(378)
 <223> Variable amino acid

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Ala Pro Asn Gln Trp Val Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 20 25 30

Xaa Xaa Xaa Xaa Xaa Val Gly Leu Gly Ser Tyr Ser Gly Phe Asn Thr
 35 40 45

Pro Pro Met Tyr Gly Asp Phe Glu Ala Gln Arg His Trp Met Glu Ile
 50 55 60

Thr Gln His Leu Ser Ile Glu Lys Trp Tyr Phe Tyr Asp Leu Gln Tyr
 65 70 75 80

Trp Gly Leu Asp Tyr Pro Pro Leu Thr Ala Phe His Ser Tyr Phe Phe
 85 90 95

Gly Lys Leu Gly Ser Phe Ile Asn Pro Ala Trp Phe Ala Leu Asp Val
 100 105 110

Ser Arg Gly Phe Glu Ser Val Asp Leu Lys Ser Tyr Met Arg Ala Thr
 115 120 125

Ala Ile Leu Ser Glu Leu Leu Cys Phe Ile Pro Ala Val Ile Trp Tyr
 130 135 140

Cys Arg Trp Met Gly Leu Asn Tyr Phe Asn Gln Asn Ala Ile Glu Gln
 145 150 155 160

Thr Ile Ile Ala Ser Ala Ile Leu Phe Asn Pro Ser Leu Ile Ile Ile
 165 170 175

Asp His Gly His Phe Gln Tyr Asn Ser Val Met Leu Gly Phe Ala Leu
 180 185 190
 Leu Ser Ile Leu Asn Leu Leu Tyr Asp Asn Phe Ala Leu Ala Ala Ile
 195 200 205
 Phe Phe Val Leu Ser Ile Ser Phe Lys Gln Met Ala Leu Tyr Tyr Ser
 210 215 220
 Pro Ile Met Phe Phe Tyr Met Leu Ser Val Ser Cys Trp Pro Leu Lys
 225 230 235 240
 Asn Phe Asn Leu Leu Arg Leu Ala Thr Ile Ser Ile Ala Val Leu Leu
 245 250 255
 Thr Phe Ala Thr Leu Leu Leu Pro Phe Val Leu Val Asp Gly Met Ser
 260 265 270
 Gln Ile Gly Gln Ile Leu Phe Arg Val Phe Pro Phe Ser Arg Gly Leu
 275 280 285
 Phe Glu Asp Lys Val Ala Asn Phe Trp Cys Thr Thr Asn Ile Leu Val
 290 295 300
 Lys Tyr Lys Gln Leu Phe Thr Asp Lys Thr Leu Thr Arg Ile Ser Leu
 305 310 315 320
 Val Ala Thr Leu Ile Ala Ile Ser Pro Ser Cys Phe Ile Ile Phe Thr
 325 330 335
 His Pro Lys Lys Val Leu Leu Pro Trp Ala Phe Ala Ala Cys Ser Trp
 340 345 350
 Ala Phe Tyr Leu Phe Ser Phe Gln Val His Glu Lys Ser Xaa Xaa Xaa
 355 360 365
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Glu Lys Asp Leu Asp Ile
 370 375 380
 Ile Ser Met Val Cys Trp Ile Ser Asn Ile Ala Phe Phe Ser Met Trp
 385 390 395 400
 Pro Leu Leu Lys Arg Asp Gly Leu Ala Leu Glu Tyr Phe Val Leu Gly
 405 410 415
 Ile Leu Ser Asn Trp Leu Ile Gly Asn Leu Asn Trp Ile Ser Lys Trp
 420 425 430
 Leu Val Pro Ser Phe Leu Ile Pro Gly Pro Thr Leu Ser Lys Lys Val
 435 440 445
 Pro Lys Arg Asp Thr Lys Thr Val Val His Thr His Trp Phe Trp Gly
 450 455 460
 Ser Val Thr Phe Val Ser Tyr Leu Gly Ala Thr Val Ile Gln Phe Val
 465 470 475 480

61/93

Asp Trp Leu Tyr Leu Pro Pro Ala Lys Tyr Pro Asp Leu Trp Val Ile
485 490 495

Leu Asn Thr Thr Leu Ser Phe Ala Cys Phe Gly Leu Phe Trp Leu Trp
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Ile Asn Tyr Asn Leu Tyr Ile Leu Arg Asp Phe Lys Leu Lys Asp
515 520 525

<210> 79

<211> 528

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 79

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20 25 30

Ile Leu Arg Cys Thr Ile Gly Leu Gly Pro Tyr Ser Gly Lys Gly Ser
35 40 45

Pro Pro Leu Tyr Gly Asp Phe Glu Ala Gln Arg His Trp Met Glu Ile
50 55 60

Thr Gln His Leu Pro Leu Ser Lys Trp Tyr Trp Tyr Asp Leu Gln Tyr
65 70 75 80

Trp Gly Leu Asp Tyr Pro Pro Leu Thr Ala Phe His Ser Tyr Leu Leu
85 90 95

Gly Leu Ile Gly Ser Phe Phe Asn Pro Ser Trp Phe Ala Leu Glu Lys
100 105 110

Ser Arg Gly Phe Glu Ser Pro Asp Asn Gly Leu Lys Thr Tyr Met Arg
115 120 125

Ser Thr Val Ile Ile Ser Asp Ile Leu Phe Tyr Phe Pro Ala Val Ile
130 135 140

Tyr Phe Thr Lys Trp Leu Gly Arg Tyr Arg Asn Gln Ser Pro Ile Gly
145 150 155 160

Gln Ser Ile Ala Ala Ser Ala Ile Leu Phe Gln Pro Ser Leu Met Leu
165 170 175

Ile Asp His Gly His Phe Gln Tyr Asn Ser Val Met Leu Gly Leu Thr
180 185 190

Ala Tyr Ala Ile Asn Asn Leu Leu Asp Glu Tyr Tyr Ala Met Ala Ala
195 200 205

Val Cys Phe Val Leu Ser Ile Cys Phe Lys Gln Met Ala Leu Tyr Tyr
210 215 220

Ala Pro Ile Phe Phe Ala Tyr Leu Leu Ser Arg Ser Leu Leu Phe Pro
 225 230 235 240
 Lys Phe Asn Ile Ala Arg Leu Thr Val Ile Ala Phe Ala Thr Leu Ala
 245 250 255
 Thr Phe Ala Ile Ile Phe Ala Pro Leu Tyr Phe Leu Gly Gly Gly Leu
 260 265 270
 Lys Asn Ile His Gln Cys Ile His Arg Ile Phe Pro Phe Ala Arg Gly
 275 280 285
 Ile Phe Glu Asp Lys Val Ala Asn Phe Trp Cys Val Thr Asn Val Phe
 290 295 300
 Val Lys Tyr Lys Glu Arg Phe Thr Ile Gln Gln Leu Gln Leu Tyr Ser
 305 310 315 320
 Leu Ile Ala Thr Val Ile Gly Phe Leu Pro Ala Met Ile Met Thr Leu
 325 330 335
 Leu His Pro Lys Lys His Leu Leu Pro Tyr Val Leu Ile Ala Cys Ser
 340 345 350
 Met Ser Phe Phe Leu Phe Ser Phe Gln Val His Glu Lys Thr Ile Leu
 355 360 365
 Ile Pro Leu Leu Pro Ile Thr Leu Leu Tyr Ser Ser Thr Asp Trp Asn
 370 375 380
 Val Leu Ser Leu Val Ser Trp Ile Asn Asn Val Ala Leu Phe Thr Leu
 385 390 395 400
 Trp Pro Leu Leu Lys Lys Asp Gly Leu His Leu Gln Tyr Ala Val Ser
 405 410 415
 Phe Leu Leu Ser Asn Trp Leu Ile Gly Asn Phe Ser Phe Ile Thr Pro
 420 425 430
 Arg Phe Leu Pro Lys Ser Leu Thr Pro Gly Pro Ser Ile Ser Ser Ile
 435 440 445
 Asn Ser Asp Tyr Arg Arg Arg Ser Leu Leu Pro Tyr Asn Val Val Trp
 450 455 460
 Lys Ser Phe Ile Ile Gly Thr Tyr Ile Ala Met Gly Phe Tyr His Phe
 465 470 475 480
 Leu Asp Gln Phe Val Ala Pro Pro Ser Lys Tyr Pro Asp Leu Trp Val
 485 490 495
 Leu Leu Asn Cys Ala Val Gly Phe Ile Cys Phe Ser Ile Phe Trp Leu
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 515 520 525

<210> 80
 <211> 511
 <212> PRT
 <213> *Pichia pastoris*

<220>
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 <222> (22)..(36)
 <223> Variable amino acid

<220>
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 <222> (365)..(379)
 <223> Variable amino acid

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 20 25 30
 Xaa Xaa Xaa Xaa Val Gly Leu Gly Ser Tyr Ser Gly Phe Asn Thr Pro
 35 40 45
 Pro Met Tyr Gly Asp Phe Glu Ala Gln Arg His Trp Met Glu Ile Thr
 50 55 60
 Gln His Leu Ser Ile Glu Lys Trp Tyr Phe Tyr Asp Leu Gln Tyr Trp
 65 70 75 80
 Gly Leu Asp Tyr Pro Pro Leu Thr Ala Phe His Ser Tyr Phe Phe Gly
 85 90 95
 Lys Leu Gly Ser Phe Ile Asn Pro Ala Trp Phe Ala Leu Asp Val Ser
 100 105 110
 Arg Gly Phe Glu Ser Val Asp Leu Lys Ser Tyr Met Arg Ala Thr Ala
 115 120 125
 Ile Leu Ser Glu Leu Leu Cys Phe Ile Pro Ala Val Ile Trp Tyr Cys
 130 135 140
 Arg Trp Met Gly Leu Asn Tyr Phe Asn Gln Asn Ala Ile Glu Gln Thr
 145 150 155 160
 Ile Ile Ala Ser Ala Ile Leu Phe Asn Pro Ser Leu Ile Ile Ile Asp
 165 170 175
 His Gly His Phe Gln Tyr Asn Ser Val Met Leu Gly Phe Ala Leu Leu
 180 185 190
 Ser Ile Leu Asn Leu Leu Tyr Asp Asn Phe Ala Leu Ala Ala Ile Phe
 195 200 205
 Phe Val Leu Ser Ile Ser Phe Lys Gln Met Ala Leu Tyr Tyr Ser Pro
 210 215 220

Ile	Met	Phe	Phe	Tyr	Met	Leu	Ser	Val	Ser	Cys	Trp	Pro	Leu	Lys	Asn	225	230	235	240
Phe	Asn	Leu	Leu	Arg	Leu	Ala	Thr	Ile	Ser	Ile	Ala	Val	Leu	Leu	Thr	245	250	255	
Phe	Ala	Thr	Leu	Leu	Leu	Pro	Phe	Val	Leu	Val	Asp	Gly	Met	Ser	Gln	260	265	270	
Ile	Gly	Gln	Ile	Leu	Phe	Arg	Val	Phe	Pro	Phe	Ser	Arg	Gly	Leu	Phe	275	280	285	
Glu	Asp	Lys	Val	Ala	Asn	Phe	Trp	Cys	Thr	Thr	Asn	Ile	Leu	Val	Lys	290	295	300	
Tyr	Lys	Gln	Leu	Phe	Thr	Asp	Lys	Thr	Leu	Thr	Arg	Ile	Ser	Leu	Val	305	310	315	320
Ala	Thr	Leu	Ile	Ala	Ile	Ser	Pro	Ser	Cys	Phe	Ile	Ile	Phe	Thr	His	325	330	335	
Pro	Lys	Lys	Val	Leu	Leu	Pro	Trp	Ala	Phe	Ala	Ala	Cys	Ser	Trp	Ala	340	345	350	
Phe	Tyr	Leu	Phe	Ser	Phe	Gln	Val	His	Glu	Lys	Ser	Xaa	Xaa	Xaa	Xaa	355	360	365	
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Glu	Lys	Asp	Leu	Asp	Ile	Ile	370	375	380	
Ser	Met	Val	Cys	Trp	Ile	Ser	Asn	Ile	Ala	Phe	Phe	Ser	Met	Trp	Pro	385	390	395	400
Leu	Leu	Lys	Arg	Asp	Gly	Leu	Ala	Leu	Glu	Tyr	Phe	Val	Leu	Gly	Ile	405	410	415	
Leu	Ser	Asn	Trp	Leu	Ile	Gly	Asn	Leu	Asn	Trp	Ile	Ser	Lys	Trp	Leu	420	425	430	
Val	Pro	Ser	Phe	Leu	Ile	Pro	Gly	Pro	Thr	Leu	Ser	Lys	Lys	Val	Pro	435	440	445	
Lys	Arg	Asp	Thr	Lys	Thr	Val	Val	His	Thr	His	Trp	Phe	Trp	Gly	Ser	450	455	460	
Val	Thr	Phe	Val	Ser	Tyr	Leu	Gly	Ala	Thr	Val	Ile	Gln	Phe	Val	Asp	465	470	475	480
Trp	Leu	Tyr	Leu	Pro	Pro	Ala	Lys	Tyr	Pro	Asp	Leu	Trp	Val	Ile	Leu	485	490	495	
Asn	Thr	Thr	Leu	Ser	Phe	Ala	Cys	Phe	Gly	Leu	Phe	Trp	Leu	Trp		500	505	510	

<210> 81

<211> 480

<212> PRT

<213> Schizosaccharomyces pombe

<400> 81

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Tyr	Ser	Ser	Lys	Phe	Leu	Phe	Phe	Pro	Cys	Leu	Ile	Met	Ser	Leu	Val	20	25	30	
Phe	Met	Gln	Trp	Leu	Ile	Ser	Ile	Gly	Pro	Tyr	Ser	Gly	Tyr	Asn	Thr	35	40	45	
Pro	Pro	Met	Tyr	Gly	Asp	Phe	Glu	Ala	Gln	Arg	His	Trp	Met	Glu	Leu	50	55	60	
Thr	Leu	His	Thr	Pro	Val	Ser	Gln	Trp	Tyr	Phe	Arg	Asp	Leu	Gln	Trp	65	70	75	80
Trp	Gly	Leu	Asp	Tyr	Pro	Pro	Leu	Thr	Ala	Tyr	Val	Ser	Trp	Phe	Phe	85	90	95	
Gly	Ile	Ile	Gly	His	Tyr	Phe	Phe	Asn	Pro	Glu	Trp	Phe	Ala	Asp	Val	100	105	110	
Thr	Ser	Arg	Gly	Phe	Glu	Ser	Leu	Glu	Leu	Lys	Leu	Phe	Met	Arg	Ser	115	120	125	
Thr	Val	Ile	Ala	Ser	His	Leu	Leu	Ile	Leu	Val	Pro	Pro	Leu	Met	Phe	130	135	140	
Tyr	Ser	Lys	Trp	Trp	Ser	Arg	Arg	Ile	Pro	Asn	Phe	Val	Asp	Arg	Asn	145	150	155	160
Ala	Ser	Leu	Ile	Met	Val	Leu	Phe	Gln	Pro	Ala	Leu	Leu	Leu	Ile	Asp	165	170	175	
His	Gly	His	Phe	Gln	Tyr	Asn	Cys	Val	Met	Leu	Gly	Leu	Val	Met	Tyr	180	185	190	
Ala	Ile	Ala	Asn	Leu	Leu	Lys	Asn	Gln	Tyr	Val	Ala	Ala	Thr	Phe	Phe	195	200	205	
Phe	Cys	Leu	Ala	Leu	Thr	Phe	Lys	Gln	Met	Ala	Leu	Tyr	Phe	Ala	Pro	210	215	220	
Pro	Ile	Phe	Phe	Tyr	Leu	Leu	Gly	Thr	Cys	Val	Lys	Pro	Lys	Ile	Arg	225	230	235	240
Phe	Ser	Arg	Phe	Ile	Leu	Leu	Ser	Val	Thr	Val	Val	Phe	Thr	Phe	Ser	245	250	255	
Leu	Ile	Leu	Phe	Pro	Trp	Ile	Tyr	Met	Asp	Tyr	Lys	Thr	Leu	Leu	Pro	260	265	270	
Gln	Ile	Leu	His	Arg	Val	Phe	Pro	Phe	Ala	Arg	Gly	Leu	Trp	Glu	Asp	275	280	285	

Lys Val Ala Asn Phe Trp Cys Thr Leu Asn Thr Val Phe Lys Ile Arg
 290 295 300
 Glu Val Phe Thr Leu His Gln Leu Gln Val Ile Ser Leu Ile Phe Thr
 305 310 315 320
 Leu Ile Ser Ile Leu Pro Ser Cys Val Ile Leu Phe Leu Tyr Pro Arg
 325 330 335
 Lys Arg Leu Leu Ala Leu Gly Phe Ala Ser Ala Ser Trp Gly Phe Phe
 340 345 350
 Leu Phe Ser Phe Gln Val His Glu Lys Ser Val Leu Leu Pro Leu Leu
 355 360 365
 Pro Thr Ser Ile Leu Leu Cys His Gly Asn Ile Thr Thr Lys Pro Trp
 370 375 380
 Ile Ala Leu Ala Asn Asn Leu Ala Val Phe Ser Leu Trp Pro Leu Leu
 385 390 395 400
 Lys Lys Asp Gly Leu Gly Leu Gln Tyr Phe Thr Leu Val Leu Met Trp
 405 410 415
 Asn Trp Ile Gly Asp Met Val Val Phe Ser Lys Asn Val Leu Phe Arg
 420 425 430
 Phe Ile Gln Leu Ser Phe Tyr Val Gly Met Ile Val Ile Leu Gly Ile
 435 440 445
 Asp Leu Phe Ile Pro Pro Pro Ser Arg Tyr Pro Asp Leu Trp Val Ile
 450 455 460
 Leu Asn Val Thr Leu Ser Phe Ala Gly Phe Phe Thr Ile Tyr Leu Trp
 465 470 475 480

<210> 82
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 <213> Pichia pastoris

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 Asp Phe Glu Ala Gln Arg His Trp Met Glu Ile Thr Gln His Leu Ser
 20 25 30
 Ile Glu Lys Trp Tyr Phe Tyr Asp Leu Gln Tyr Trp Gly Leu Asp Tyr
 35 40 45

Pro	Pro	Leu	Thr	Ala	Phe	His	Ser	Tyr	Phe	Phe	Gly	Lys	Leu	Gly	Ser	50	55	60
Phe	Ile	Asn	Pro	Ala	Trp	Phe	Ala	Leu	Asp	Val	Ser	Arg	Gly	Phe	Glu	65	70	75
Ser	Val	Asp	Leu	Lys	Ser	Tyr	Met	Arg	Ala	Thr	Ala	Ile	Leu	Ser	Glu	85	90	95
Leu	Leu	Cys	Phe	Ile	Pro	Ala	Val	Ile	Trp	Tyr	Cys	Arg	Trp	Met	Gly	100	105	110
Leu	Asn	Tyr	Phe	Asn	Gln	Asn	Ala	Ile	Glu	Gln	Thr	Ile	Ile	Ala	Ser	115	120	125
Ala	Ile	Leu	Phe	Asn	Pro	Ser	Leu	Ile	Ile	Ile	Asp	His	Gly	His	Phe	130	135	140
Gln	Tyr	Asn	Ser	Val	Met	Leu	Gly	Phe	Ala	Leu	Leu	Ser	Ile	Leu	Asn	145	150	155
Leu	Leu	Tyr	Asp	Asn	Phe	Ala	Leu	Ala	Ala	Ile	Phe	Phe	Val	Leu	Ser	165	170	175
Ile	Ser	Phe	Lys	Gln	Met	Ala	Leu	Tyr	Tyr	Ser	Pro	Ile	Met	Phe	Phe	180	185	190
Tyr	Met	Leu	Ser	Val	Ser	Cys	Trp	Pro	Leu	Lys	Asn	Phe	Asn	Leu	Leu	195	200	205
Arg	Leu	Ala	Thr	Ile	Ser	Ile	Ala	Val	Leu	Leu	Thr	Phe	Ala	Thr	Leu	210	215	220
Leu	Leu	Pro	Phe	Val	Leu	Val	Asp	Gly	Met	Ser	Gln	Ile	Gly	Gln	Ile	225	230	235
Leu	Phe	Arg	Val	Phe	Pro	Phe	Ser	Arg	Gly	Leu	Phe	Glu	Asp	Lys	Val	245	250	255
Ala	Asn	Phe	Trp	Cys	Thr	Thr	Asn	Ile	Leu	Val	Lys	Tyr	Lys	Gln	Leu	260	265	270
Phe	Thr	Asp	Lys	Thr	Leu	Thr	Arg	Ile	Ser	Leu	Val	Ala	Thr	Leu	Ile	275	280	285
Ala	Ile	Ser	Pro	Ser	Cys	Phe	Ile	Ile	Phe	Thr	His	Pro	Lys	Lys	Val	290	295	300
Leu	Leu	Pro	Trp	Ala	Phe	Ala	Ala	Cys	Ser	Trp	Ala	Phe	Tyr	Leu	Phe	305	310	315
Ser	Phe	Gln	Val	His	Glu	Lys	Ser	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	325	330	335
Xaa	Xaa	Xaa	Xaa	Xaa	Glu	Lys	Asp	Leu	Asp	Ile	Ile	Ser	Met	Val	Cys	340	345	350

Trp Ile Ser Asn Ile Ala Phe Phe Ser Met Trp Pro Leu Leu Lys Arg
 355 360 365
 Asp Gly Leu Ala Leu Glu Tyr Phe Val Leu Gly Ile Leu Ser Asn Trp
 370 375 380
 Leu Ile Gly Asn Leu Asn Trp Ile Ser Lys Trp Leu Val Pro Ser Phe
 385 390 395 400
 Leu Ile Pro Gly Pro Thr Leu Ser Lys Lys Val Pro Lys Arg Asp Thr
 405 410 415
 Lys Thr Val Val His Thr His Trp Phe Trp Gly Ser Val Thr Phe Val
 420 425 430
 Ser Tyr Leu Gly Ala Thr Val Ile Gln Phe Val Asp Trp Leu Tyr Leu
 435 440 445
 Pro Pro Ala Lys Tyr Pro Asp Leu Trp Val Ile Leu Asn Thr Thr Leu
 450 455 460
 Ser Phe Ala Cys Phe Gly Leu Phe Trp Leu Trp Ile Asn
 465 470 475

<210> 83

<211> 448

<212> PRT

<213> *Drosophila melanogaster*

<400> 83

Ile Ser Leu Tyr Ser Tyr Ser Gly Phe Asp Ser Pro Pro Met His Gly
 1 5 10 15
 Asp Tyr Glu Ala Gln Arg His Trp Gln Glu Ile Thr Val Asn Leu Ala
 20 25 30
 Val Gly Glu Trp Tyr Thr Asn Ser Ser Asn Asn Asp Leu Gln Tyr Trp
 35 40 45
 Gly Leu Asp Tyr Pro Pro Leu Thr Ala Tyr His Ser Tyr Leu Val Gly
 50 55 60
 Arg Ile Gly Ala Ser Ile Asp Pro Arg Phe Val Glu Leu His Lys Ser
 65 70 75 80
 Arg Gly Phe Glu Ser Lys Glu His Lys Arg Phe Met Arg Ala Thr Val
 85 90 95
 Val Ser Ala Asp Val Leu Ile Tyr Leu Pro Ala Met Leu Leu Leu Ala
 100 105 110
 Tyr Ser Leu Asp Lys Ala Phe Arg Ser Asp Asp Lys Leu Phe Leu Phe
 115 120 125
 Thr Leu Val Ala Ala Tyr Pro Gly Gln Thr Leu Ile Asp Asn Gly His
 130 135 140

Phe 145	Gln	Tyr	Asn	Asn	Ile 150	Ser	Leu	Gly	Phe	Ala 155	Ala	Val	Ala	Ile	Ala 160
Ala	Ile	Leu	Arg	Arg 165	Arg	Phe	Tyr	Ala	Ala 170	Ala	Phe	Phe	Phe	Thr 175	Leu
Ala	Leu	Asn	Tyr 180	Lys	Gln	Met	Glu	Leu 185	Tyr	His	Ser	Leu	Pro 190	Phe	Phe
Ala	Phe	Leu 195	Leu	Gly	Glu	Cys	Val 200	Ser	Gln	Lys	Ser	Phe 205	Ala	Ser	Phe
Ile	Ala 210	Glu	Ile	Ser	Arg	Ile 215	Ala	Ala	Val	Val	Leu 220	Gly	Thr	Phe	Ala
Ile 225	Leu	Trp	Val	Pro	Trp 230	Leu	Gly	Ser	Leu	Gln 235	Ala	Val	Leu	Gln	Val 240
Leu	His	Arg	Leu	Phe 245	Pro	Val	Ala	Arg	Gly 250	Val	Phe	Glu	Asp	Lys 255	Val
Ala	Asn	Val	Trp 260	Cys	Ala	Val	Asn	Val 265	Val	Trp	Lys	Leu	Lys 270	Lys	His
Ile	Ser	Asn 275	Asp	Gln	Met	Ala	Leu 280	Val	Cys	Ile	Ala	Cys 285	Thr	Leu	Ile
Ala	Ser 290	Leu	Pro	Thr	Asn	Val 295	Leu	Leu	Phe	Arg	Arg 300	Arg	Thr	Asn	Val
Gly 305	Phe	Leu	Leu	Ala	Leu 310	Phe	Asn	Thr	Ser	Leu 315	Ala	Phe	Phe	Leu	Phe 320
Ser	Phe	Gln	Val	His 325	Glu	Lys	Thr	Ile	Leu 330	Leu	Thr	Ala	Leu	Pro 335	Ala
Leu	Phe	Leu 340	Leu	Lys	Cys	Trp	Pro	Asp 345	Glu	Met	Ile	Leu	Phe 350	Leu	Glu
Val	Thr	Val 355	Phe	Ser	Met	Leu	Pro 360	Leu	Leu	Ala	Arg	Asp 365	Glu	Leu	Leu
Val 370	Pro	Ala	Val	Val	Ala	Thr 375	Val	Ala	Phe	His	Leu 380	Ile	Phe	Lys	Cys
Phe 385	Asp	Ser	Lys	Ser	Lys 390	Leu	Ser	Asn	Glu	Tyr 395	Pro	Leu	Lys	Tyr	Ile 400
Ala	Asn	Ile	Ser	Gln 405	Ile	Leu	Met	Ile	Ser 410	Val	Val	Val	Ala	Ser	Leu
Thr	Val	Pro	Ala 420	Pro	Thr	Lys	Tyr	Pro 425	Asp	Leu	Trp	Pro	Leu	Ile	Ile
Ser	Val	Thr 435	Ser	Cys	Gly	His	Phe 440	Phe	Leu	Phe	Phe	Leu 445	Trp	Gly	Asn

<210> 84
 <211> 478
 <212> PRT
 <213> Pichia pastoris

<220>
 <221> MOD_RES
 <222> (324)..(336)
 <223> Variable amino acid

<400> 84
 Tyr Ser Gly Phe Asn Thr Pro Pro Met Tyr Gly Asp Phe Glu Ala Gln
 1 5 10 15
 Arg His Trp Met Glu Ile Thr Gln His Leu Ser Ile Glu Lys Trp Tyr
 20 25 30
 Phe Tyr Asp Leu Gln Tyr Trp Gly Leu Asp Tyr Pro Pro Leu Thr Ala
 35 40 45
 Phe His Ser Tyr Phe Phe Gly Lys Leu Gly Ser Phe Ile Asn Pro Ala
 50 55 60
 Trp Phe Ala Leu Asp Val Ser Arg Gly Phe Glu Ser Val Asp Leu Lys
 65 70 75 80
 Ser Tyr Met Arg Ala Thr Ala Ile Leu Ser Glu Leu Leu Cys Phe Ile
 85 90 95
 Pro Ala Val Ile Trp Tyr Cys Arg Trp Met Gly Leu Asn Tyr Phe Asn
 100 105 110
 Gln Asn Ala Ile Glu Gln Thr Ile Ile Ala Ser Ala Ile Leu Phe Asn
 115 120 125
 Pro Ser Leu Ile Ile Ile Asp His Gly His Phe Gln Tyr Asn Ser Val
 130 135 140
 Met Leu Gly Phe Ala Leu Leu Ser Ile Leu Asn Leu Leu Tyr Asp Asn
 145 150 155 160
 Phe Ala Leu Ala Ala Ile Phe Phe Val Leu Ser Ile Ser Phe Lys Gln
 165 170 175
 Met Ala Leu Tyr Tyr Ser Pro Ile Met Phe Phe Tyr Met Leu Ser Val
 180 185 190
 Ser Cys Trp Pro Leu Lys Asn Phe Asn Leu Leu Arg Leu Ala Thr Ile
 195 200 205
 Ser Ile Ala Val Leu Leu Thr Phe Ala Thr Leu Leu Leu Pro Phe Val
 210 215 220
 Leu Val Asp Gly Met Ser Gln Ile Gly Gln Ile Leu Phe Arg Val Phe
 225 230 235 240
 Pro Phe Ser Arg Gly Leu Phe Glu Asp Lys Val Ala Asn Phe Trp Cys
 245 250 255

Thr Thr Asn Ile Leu Val Lys Tyr Lys Gln Leu Phe Thr Asp Lys Thr
 260 265 270
 Leu Thr Arg Ile Ser Leu Val Ala Thr Leu Ile Ala Ile Ser Pro Ser
 275 280 285
 Cys Phe Ile Ile Phe Thr His Pro Lys Lys Val Leu Leu Pro Trp Ala
 290 295 300
 Phe Ala Ala Cys Ser Trp Ala Phe Tyr Leu Phe Ser Phe Gln Val His
 305 310 315 320
 Glu Lys Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 325 330 335
 Glu Lys Asp Leu Asp Ile Ile Ser Met Val Cys Trp Ile Ser Asn Ile
 340 345 350
 Ala Phe Phe Ser Met Trp Pro Leu Leu Lys Arg Asp Gly Leu Ala Leu
 355 360 365
 Glu Tyr Phe Val Leu Gly Ile Leu Ser Asn Trp Leu Ile Gly Asn Leu
 370 375 380
 Asn Trp Ile Ser Lys Trp Leu Val Pro Ser Phe Leu Ile Pro Gly Pro
 385 390 395 400
 Thr Leu Ser Lys Lys Val Pro Lys Arg Asp Thr Lys Thr Val Val His
 405 410 415
 Thr His Trp Phe Trp Gly Ser Val Thr Phe Val Ser Tyr Leu Gly Ala
 420 425 430
 Thr Val Ile Gln Phe Val Asp Trp Leu Tyr Leu Pro Pro Ala Lys Tyr
 435 440 445
 Pro Asp Leu Trp Val Ile Leu Asn Thr Thr Leu Ser Phe Ala Cys Phe
 450 455 460
 Gly Leu Phe Trp Leu Trp Ile Asn Tyr Asn Leu Tyr Ile Leu
 465 470 475

<210> 85

<211> 459

<212> PRT

<213> Arabidopsis thaliana

<400> 85

Tyr Ser Gly Ala Gly Ile Pro Pro Lys Phe Gly Asp Phe Glu Ala Gln
 1 5 10 15
 Arg His Trp Met Glu Ile Thr Thr Asn Leu Pro Val Ile Asp Trp Tyr
 20 25 30
 Arg Asn Gly Thr Tyr Asn Asp Leu Thr Tyr Trp Gly Leu Asp Tyr Pro
 35 40 45

Pro Leu Thr Ala Tyr Gln Ser Tyr Ile His Gly Ile Phe Leu Arg Phe
 50 55 60
 Phe Asn Pro Glu Ser Val Ala Leu Leu Ser Ser Arg Gly His Glu Ser
 65 70 75 80
 Tyr Leu Gly Lys Leu Leu Met Arg Trp Thr Val Leu Ser Ser Asp Ala
 85 90 95
 Phe Ile Phe Phe Pro Ala Ala Leu Phe Phe Val Leu Val Tyr His Arg
 100 105 110
 Asn Arg Thr Arg Gly Gly Lys Ser Glu Val Ala Trp His Ile Ala Met
 115 120 125
 Ile Leu Leu Asn Pro Cys Leu Ile Leu Ile Asp His Gly His Phe Gln
 130 135 140
 Tyr Asn Cys Ile Ser Leu Gly Leu Thr Val Gly Ala Ile Ala Ala Val
 145 150 155 160
 Leu Cys Glu Ser Glu Val Leu Thr Cys Val Leu Phe Ser Leu Ala Leu
 165 170 175
 Ser His Lys Gln Met Ser Ala Tyr Phe Ala Pro Ala Phe Phe Ser His
 180 185 190
 Leu Leu Gly Lys Cys Leu Arg Arg Lys Ser Pro Ile Leu Ser Val Ile
 195 200 205
 Lys Leu Gly Ile Ala Val Ile Val Thr Phe Val Ile Phe Trp Trp Pro
 210 215 220
 Tyr Val His Ser Leu Asp Asp Phe Leu Met Val Leu Ser Arg Leu Ala
 225 230 235 240
 Pro Phe Glu Arg Gly Ile Tyr Glu Asp Tyr Val Ala Asn Phe Trp Cys
 245 250 255
 Thr Thr Ser Ile Leu Ile Lys Trp Lys Asn Leu Phe Thr Thr Gln Ser
 260 265 270
 Leu Lys Ser Ile Ser Leu Ala Ala Thr Ile Leu Ala Ser Leu Pro Ser
 275 280 285
 Met Val Gln Gln Ile Leu Ser Pro Ser Asn Glu Gly Phe Leu Tyr Gly
 290 295 300
 Leu Leu Asn Ser Ser Met Ala Phe Tyr Leu Phe Ser Phe Gln Val His
 305 310 315 320
 Glu Lys Ser Ile Leu Met Pro Phe Leu Ser Ala Thr Leu Leu Ala Leu
 325 330 335
 Lys Leu Pro Asp His Phe Ser His Leu Thr Tyr Tyr Ala Leu Phe Ser
 340 345 350

Met Phe Pro Leu Leu Cys Arg Asp Lys Leu Leu Ile Pro Tyr Leu Thr
 355 360 365

Leu Ser Phe Leu Phe Thr Val Ile Tyr His Ser Pro Gly Asn His His
 370 375 380

Ala Ile Gln Lys Thr Asp Val Ser Phe Phe Ser Phe Lys Asn Phe Pro
 385 390 395 400

Gly Tyr Val Phe Leu Leu Arg Thr His Phe Phe Ile Ser Val Val Leu
 405 410 415

His Val Leu Tyr Leu Thr Ile Lys Pro Pro Gln Lys Tyr Pro Phe Leu
 420 425 430

Phe Glu Ala Leu Ile Met Ile Leu Cys Phe Ser Tyr Phe Ile Met Phe
 435 440 445

Ala Phe Tyr Thr Asn Tyr Thr Gln Trp Thr Leu
 450 455

<210> 86

<211> 836

<212> DNA

<213> Kluyveromyces lactis

<400> 86

atctctgttt caacagctct tgcattcatt ggttctttcg gtccaatcta tatctttgga 60
 ggatacaaga acttagtgca atcaatgcac aggatttttc catttgccag gggatatctt 120
 gaagataaag ttgcgaattt ttggtgcgtt tctaataatt tcatcaaata tagaaatcta 180
 ttcactcaga aggatcttca attataactca ttactcgcaa cagttattgg gcttttacca 240
 tcattcatta taacattttt ataccggaag agacatttac taccatatgc tttggccgca 300
 tgttcgatgt cattcttctt attcagcttc caggttcattg aaaagacaat cttattacct 360
 ttacttccta ttacactctt gtacacgtca agagattgga atgttctatc attgggttgt 420
 tggattaaca acgtggcatt gtttacactc tggccattac tgaaaaagga caatctagta 480
 ttgcaatatg gagtcattgt catgttttagc aatttggttga tcggttaactt cagtttcgtc 540
 acaccacgct tcctcccaaa atttttgaca ccagggccat ccatcagtga tatagatggt 600
 gattatagac gggcaagttt actacccaag agcctaatat ggagattaat cattgtttggc 660
 tcatatattg caatggggat tattcatttt ctagactatt acgtctcccc gccatcaaaa 720
 taccctgatt tatgggtgct tgccaattgt tccttgggct tctcatgttt tgtgacattt 780
 tggatatgga acaattataa ttattcgaaa tgagaaacag cactttgcaa gattta 836

<210> 87

<211> 277

<212> PRT

<213> Kluyveromyces lactis

<400> 87

Ile Ser Val Ser Thr Ala Leu Ala Phe Ile Gly Ser Phe Gly Pro Ile
 1 5 10 15

Tyr Ile Phe Gly Gly Tyr Lys Asn Leu Val Gln Ser Met His Arg Ile
 20 25 30

Phe Pro Phe Ala Arg Gly Ile Phe Glu Asp Lys Val Ala Asn Phe Trp
 35 40 45

Cys Val Ser Asn Ile Phe Ile Lys Tyr Arg Asn Leu Phe Thr Gln Lys
 50 55 60
 Asp Leu Gln Leu Tyr Ser Leu Leu Ala Thr Val Ile Gly Leu Leu Pro
 65 70 75 80
 Ser Phe Ile Ile Thr Phe Leu Tyr Pro Lys Arg His Leu Leu Pro Tyr
 85 90 95
 Ala Leu Ala Ala Cys Ser Met Ser Phe Phe Leu Phe Ser Phe Gln Val
 100 105 110
 His Glu Lys Thr Ile Leu Leu Pro Leu Leu Pro Ile Thr Leu Leu Tyr
 115 120 125
 Thr Ser Arg Asp Trp Asn Val Leu Ser Leu Val Cys Trp Ile Asn Asn
 130 135 140
 Val Ala Leu Phe Thr Leu Trp Pro Leu Leu Lys Lys Asp Asn Leu Val
 145 150 155 160
 Leu Gln Tyr Gly Val Met Phe Met Phe Ser Asn Trp Leu Ile Gly Asn
 165 170 175
 Phe Ser Phe Val Thr Pro Arg Phe Leu Pro Lys Phe Leu Thr Pro Gly
 180 185 190
 Pro Ser Ile Ser Asp Ile Asp Val Asp Tyr Arg Arg Ala Ser Leu Leu
 195 200 205
 Pro Lys Ser Leu Ile Trp Arg Leu Ile Ile Val Gly Ser Tyr Ile Ala
 210 215 220
 Met Gly Ile Ile His Phe Leu Asp Tyr Tyr Val Ser Pro Pro Ser Lys
 225 230 235 240
 Tyr Pro Asp Leu Trp Val Leu Ala Asn Cys Ser Leu Gly Phe Ser Cys
 245 250 255
 Phe Val Thr Phe Trp Ile Trp Asn Asn Tyr Asn Tyr Ser Lys Glu Thr
 260 265 270
 Ala Leu Cys Lys Ile
 275

<210> 88

<211> 284

<212> PRT

<213> Kluyveromyces lactis

<220>

<221> MOD_RES

<222> (116)..(127)

<223> Variable amino acid

<220>

<221> MOD_RES

<222> (271)

<223> Variable amino acid

<400> 88

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Ile Ser Val Ser Thr Ala Leu Ala Phe Ile Gly Ser Phe Gly Pro Ile
 1           5           10           15

Tyr Ile Phe Gly Gly Tyr Lys Asn Leu Val Gln Ser Met His Arg Ile
          20           25           30

Phe Pro Phe Ala Arg Gly Ile Phe Glu Asp Lys Val Ala Asn Phe Trp
          35           40           45

Cys Val Ser Asn Ile Phe Ile Lys Tyr Arg Asn Leu Phe Thr Gln Lys
 50           55           60

Asp Leu Gln Leu Tyr Ser Leu Leu Ala Thr Val Ile Gly Leu Leu Pro
 65           70           75           80

Ser Phe Ile Ile Thr Phe Leu Tyr Pro Lys Arg His Leu Leu Pro Tyr
          85           90           95

Ala Leu Ala Ala Cys Ser Met Ser Phe Phe Leu Phe Ser Phe Gln Val
          100          105          110

His Glu Lys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
          115          120          125

Thr Ser Arg Asp Trp Asn Val Leu Ser Leu Val Cys Trp Ile Asn Asn
          130          135          140

Val Ala Leu Phe Thr Leu Trp Pro Leu Leu Lys Lys Asp Asn Leu Val
          145          150          155          160

Leu Gln Tyr Gly Val Met Phe Met Phe Ser Asn Trp Leu Ile Gly Asn
          165          170          175

Phe Ser Phe Val Thr Pro Arg Phe Leu Pro Lys Phe Leu Thr Pro Gly
          180          185          190

Pro Ser Ile Ser Asp Ile Asp Val Asp Tyr Arg Arg Ala Ser Leu Leu
          195          200          205

Pro Lys Ser Leu Ile Trp Arg Leu Ile Ile Val Gly Ser Tyr Ile Ala
          210          215          220

Met Gly Ile Ile His Phe Leu Asp Tyr Tyr Val Ser Pro Pro Ser Gln
          225          230          235          240

Glu Arg Tyr Lys Tyr Pro Asp Leu Trp Val Leu Ala Asn Cys Ser Leu
          245          250          255

Gly Phe Ser Cys Phe Val Thr Phe Trp Ile Trp Asn Asn Tyr Xaa Leu
          260          265          270

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Phe Glu Arg Met Arg Asn Ser Thr Leu Gln Asp Leu
275 280

<210> 89
<211> 280
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 89
Ile Ala Phe Ala Thr Leu Ala Thr Phe Ala Ile Ile Phe Ala Pro Leu
1 5 10 15
Tyr Phe Leu Gly Gly Gly Leu Lys Asn Ile His Gln Cys Ile His Arg
20 25 30
Ile Phe Pro Phe Ala Arg Gly Ile Phe Glu Asp Lys Val Ala Asn Phe
35 40 45
Trp Cys Val Thr Asn Val Phe Val Lys Tyr Lys Glu Arg Phe Thr Ile
50 55 60
Gln Gln Leu Gln Leu Tyr Ser Leu Ile Ala Thr Val Ile Gly Phe Leu
65 70 75 80
Pro Ala Met Ile Met Thr Leu Leu His Pro Lys Lys His Leu Leu Pro
85 90 95
Tyr Val Leu Ile Ala Cys Ser Met Ser Phe Phe Leu Phe Ser Phe Gln
100 105 110
Val His Glu Lys Thr Ile Leu Ile Pro Leu Leu Pro Ile Thr Leu Leu
115 120 125
Tyr Ser Ser Thr Asp Trp Asn Val Leu Ser Leu Val Ser Trp Ile Asn
130 135 140
Asn Val Ala Leu Phe Thr Leu Trp Pro Leu Leu Lys Lys Asp Gly Leu
145 150 155 160
His Leu Gln Tyr Ala Val Ser Phe Leu Leu Ser Asn Trp Leu Ile Gly
165 170 175
Asn Phe Ser Phe Ile Thr Pro Arg Phe Leu Pro Lys Ser Leu Thr Pro
180 185 190
Gly Pro Ser Ile Ser Ser Ile Asn Ser Asp Tyr Arg Arg Arg Ser Leu
195 200 205
Leu Pro Tyr Asn Val Val Trp Lys Ser Phe Ile Ile Gly Thr Tyr Ile
210 215 220
Ala Met Gly Phe Tyr His Phe Leu Asp Gln Phe Val Ala Pro Pro Ser
225 230 235 240
Lys Tyr Pro Asp Leu Trp Val Leu Leu Asn Cys Ala Val Gly Phe Ile
245 250 255

Cys Phe Ser Ile Phe Trp Leu Trp Ser Tyr Tyr Lys Ile Phe Thr Ser
 260 265 270

Gly Ser Lys Ser Met Lys Asp Leu
 275 280

<210> 90
 <211> 284
 <212> PRT
 <213> Kluyveromyces lactis

<220>
 <221> MOD_RES
 <222> (116)..(127)
 <223> Variable amino acid

<220>
 <221> MOD_RES
 <222> (271)
 <223> Variable amino acid

<400> 90
 Ile Ser Val Ser Thr Ala Leu Ala Phe Ile Gly Ser Phe Gly Pro Ile
 1 5 10 15
 Tyr Ile Phe Gly Gly Tyr Lys Asn Leu Val Gln Ser Met His Arg Ile
 20 25 30
 Phe Pro Phe Ala Arg Gly Ile Phe Glu Asp Lys Val Ala Asn Phe Trp
 35 40 45
 Cys Val Ser Asn Ile Phe Ile Lys Tyr Arg Asn Leu Phe Thr Gln Lys
 50 55 60
 Asp Leu Gln Leu Tyr Ser Leu Leu Ala Thr Val Ile Gly Leu Leu Pro
 65 70 75 80
 Ser Phe Ile Ile Thr Phe Leu Tyr Pro Lys Arg His Leu Leu Pro Tyr
 85 90 95
 Ala Leu Ala Ala Cys Ser Met Ser Phe Phe Leu Phe Ser Phe Gln Val
 100 105 110
 His Glu Lys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
 115 120 125
 Thr Ser Arg Asp Trp Asn Val Leu Ser Leu Val Cys Trp Ile Asn Asn
 130 135 140
 Val Ala Leu Phe Thr Leu Trp Pro Leu Leu Lys Lys Asp Asn Leu Val
 145 150 155 160
 Leu Gln Tyr Gly Val Met Phe Met Phe Ser Asn Trp Leu Ile Gly Asn
 165 170 175
 Phe Ser Phe Val Thr Pro Arg Phe Leu Pro Lys Phe Leu Thr Pro Gly
 180 185 190

Pro Ser Ile Ser Asp Ile Asp Val Asp Tyr Arg Arg Ala Ser Leu Leu
195 200 205

Pro Lys Ser Leu Ile Trp Arg Leu Ile Ile Val Gly Ser Tyr Ile Ala
210 215 220

Met Gly Ile Ile His Phe Leu Asp Tyr Tyr Val Ser Pro Pro Ser Gln
225 230 235 240

Glu Arg Tyr Lys Tyr Pro Asp Leu Trp Val Leu Ala Asn Cys Ser Leu
245 250 255

Gly Phe Ser Cys Phe Val Thr Phe Trp Ile Trp Asn Asn Tyr Xaa Leu
260 265 270

Phe Glu Arg Met Arg Asn Ser Thr Leu Gln Asp Leu
275 280

<210> 91

<211> 250

<212> PRT

<213> Schizosaccharomyces pombe

<400> 91

Leu Ser Val Thr Val Val Phe Thr Phe Ser Leu Ile Leu Phe Pro Trp
1 5 10 15

Ile Tyr Met Asp Tyr Lys Thr Leu Leu Pro Gln Ile Leu His Arg Val
20 25 30

Phe Pro Phe Ala Arg Gly Leu Trp Glu Asp Lys Val Ala Asn Phe Trp
35 40 45

Cys Thr Leu Asn Thr Val Phe Lys Ile Arg Glu Val Phe Thr Leu His
50 55 60

Gln Leu Gln Val Ile Ser Leu Ile Phe Thr Leu Ile Ser Ile Leu Pro
65 70 75 80

Ser Cys Val Ile Leu Phe Leu Tyr Pro Arg Lys Arg Leu Leu Ala Leu
85 90 95

Gly Phe Ala Ser Ala Ser Trp Gly Phe Phe Leu Phe Ser Phe Gln Val
100 105 110

His Glu Lys Ser Val Leu Leu Pro Leu Leu Pro Thr Ser Ile Leu Leu
115 120 125

Cys His Gly Asn Ile Thr Thr Lys Pro Trp Ile Ala Leu Ala Asn Asn
130 135 140

Leu Ala Val Phe Ser Leu Trp Pro Leu Leu Lys Lys Asp Gly Leu Gly
145 150 155 160

Leu Gln Tyr Phe Thr Leu Val Leu Met Trp Asn Trp Ile Gly Asp Met
165 170 175

Val Val Phe Ser Lys Asn Val Leu Phe Arg Phe Ile Gln Leu Ser Phe
 180 185 190

Tyr Val Gly Met Ile Val Ile Leu Gly Ile Asp Leu Phe Ile Pro Pro
 195 200 205

Pro Ser Arg Tyr Pro Asp Leu Trp Val Ile Leu Asn Val Thr Leu Ser
 210 215 220

Phe Ala Gly Phe Phe Thr Ile Tyr Leu Trp Thr Leu Gly Arg Leu Leu
 225 230 235 240

His Ile Ser Ser Lys Leu Ser Thr Asp Leu
 245 250

<210> 92
 <211> 238
 <212> PRT
 <213> Kluyveromyces lactis

<220>
 <221> MOD_RES
 <222> (88)..(99)
 <223> Variable amino acid

<400> 92
 Met His Arg Ile Phe Pro Phe Ala Arg Gly Ile Phe Glu Asp Lys Val
 1 5 10 15

Ala Asn Phe Trp Cys Val Ser Asn Ile Phe Ile Lys Tyr Arg Asn Leu
 20 25 30

Phe Thr Gln Lys Asp Leu Gln Leu Tyr Ser Leu Leu Ala Thr Val Ile
 35 40 45

Gly Leu Leu Pro Ser Phe Ile Ile Thr Phe Leu Tyr Pro Lys Arg His
 50 55 60

Leu Leu Pro Tyr Ala Leu Ala Ala Cys Ser Met Ser Phe Phe Leu Phe
 65 70 75 80

Ser Phe Gln Val His Glu Lys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 85 90 95

Xaa Xaa Xaa Tyr Thr Ser Arg Asp Trp Asn Val Leu Ser Leu Val Cys
 100 105 110

Trp Ile Asn Asn Val Ala Leu Phe Thr Leu Trp Pro Leu Leu Lys Lys
 115 120 125

Asp Asn Leu Val Leu Gln Tyr Gly Val Met Phe Met Phe Ser Asn Trp
 130 135 140

Leu Ile Gly Asn Phe Ser Phe Val Thr Pro Arg Phe Leu Pro Lys Phe
 145 150 155 160

Leu Thr Pro Gly Pro Ser Ile Ser Asp Ile Asp Val Asp Tyr Arg Arg
 165 170 175
 Ala Ser Leu Leu Pro Lys Ser Leu Ile Trp Arg Leu Ile Ile Val Gly
 180 185 190
 Ser Tyr Ile Ala Met Gly Ile Ile His Phe Leu Asp Tyr Tyr Val Ser
 195 200 205
 Pro Pro Ser Lys Tyr Pro Asp Leu Trp Val Leu Ala Asn Cys Ser Leu
 210 215 220
 Gly Phe Ser Cys Phe Val Thr Phe Trp Ile Trp Asn Asn Tyr
 225 230 235

<210> 93
 <211> 219
 <212> PRT
 <213> Arabidopsis thaliana

<400> 93
 Leu Ser Arg Leu Ala Pro Phe Glu Arg Gly Ile Tyr Glu Asp Tyr Val
 1 5 10 15
 Ala Asn Phe Trp Cys Thr Thr Ser Ile Leu Ile Lys Trp Lys Asn Leu
 20 25 30
 Phe Thr Thr Gln Ser Leu Lys Ser Ile Ser Leu Ala Ala Thr Ile Leu
 35 40 45
 Ala Ser Leu Pro Ser Met Val Gln Gln Ile Leu Ser Pro Ser Asn Glu
 50 55 60
 Gly Phe Leu Tyr Gly Leu Leu Asn Ser Ser Met Ala Phe Tyr Leu Phe
 65 70 75 80
 Ser Phe Gln Val His Glu Lys Ser Ile Leu Met Pro Phe Leu Ser Ala
 85 90 95
 Thr Leu Leu Ala Leu Lys Leu Pro Asp His Phe Ser His Leu Thr Tyr
 100 105 110
 Tyr Ala Leu Phe Ser Met Phe Pro Leu Leu Cys Arg Asp Lys Leu Leu
 115 120 125
 Ile Pro Tyr Leu Thr Leu Ser Phe Leu Phe Thr Val Ile Tyr His Ser
 130 135 140
 Pro Gly Asn His His Ala Ile Gln Lys Thr Asp Val Ser Phe Phe Ser
 145 150 155 160
 Phe Lys Asn Phe Pro Gly Tyr Val Phe Leu Leu Arg Thr His Phe Phe
 165 170 175
 Ile Ser Val Val Leu His Val Leu Tyr Leu Thr Ile Lys Pro Pro Gln
 180 185 190

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Lys Tyr Pro Phe Leu Phe Glu Ala Leu Ile Met Ile Leu Cys Phe Ser
195 200 205

Tyr Phe Ile Met Phe Ala Phe Tyr Thr Asn Tyr
210 215

<210> 94
<211> 252
<212> PRT
<213> Kluyveromyces lactis

<220>
<221> MOD_RES
<222> (114)..(125)
<223> Variable amino acid

<400> 94
Val Ser Thr Ala Leu Ala Phe Ile Gly Ser Phe Gly Pro Ile Tyr Ile
1 5 10 15
Phe Gly Gly Tyr Lys Asn Leu Val Gln Ser Met His Arg Ile Phe Pro
20 25 30
Phe Ala Arg Gly Ile Phe Glu Asp Lys Val Ala Asn Phe Trp Cys Val
35 40 45
Ser Asn Ile Phe Ile Lys Tyr Arg Asn Leu Phe Thr Gln Lys Asp Leu
50 55 60
Gln Leu Tyr Ser Leu Leu Ala Thr Val Ile Gly Leu Leu Pro Ser Phe
65 70 75 80
Ile Ile Thr Phe Leu Tyr Pro Lys Arg His Leu Leu Pro Tyr Ala Leu
85 90 95
Ala Ala Cys Ser Met Ser Phe Phe Leu Phe Ser Phe Gln Val His Glu
100 105 110
Lys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Thr Ser
115 120 125
Arg Asp Trp Asn Val Leu Ser Leu Val Cys Trp Ile Asn Asn Val Ala
130 135 140
Leu Phe Thr Leu Trp Pro Leu Leu Lys Lys Asp Asn Leu Val Leu Gln
145 150 155 160
Tyr Gly Val Met Phe Met Val Thr Pro Arg Phe Leu Pro Lys Phe Leu
165 170 175
Thr Pro Gly Pro Ser Ile Ser Asp Ile Asp Val Asp Tyr Arg Arg Ala
180 185 190
Ser Leu Leu Pro Lys Ser Leu Ile Trp Arg Leu Ile Ile Val Gly Ser
195 200 205

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Tyr Ile Ala Met Gly Ile Ile His Phe Leu Asp Tyr Tyr Val Ser Pro
210 215 220

Pro Ser Lys Tyr Pro Asp Leu Trp Val Leu Ala Asn Cys Ser Leu Gly
225 230 235 240

Phe Ser Cys Phe Val Thr Phe Trp Ile Trp Asn Asn
245 250

<210> 95

<211> 259

<212> PRT

<213> Homo sapiens

<400> 95

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Phe Pro Val Asp Arg Gly Leu Phe Glu Asp Lys Val Ala Asn Ile Trp
35 40 45

Cys Ser Phe Asn Val Phe Leu Lys Ile Lys Asp Ile Leu Pro Arg His
50 55 60

Ile Gln Leu Ile Met Ser Phe Cys Phe Thr Phe Leu Ser Leu Leu Pro
65 70 75 80

Ala Cys Ile Lys Leu Ile Leu Gln Pro Ser Ser Lys Gly Phe Lys Phe
85 90 95

Thr Leu Val Ser Cys Ala Leu Ser Phe Phe Leu Phe Ser Phe Gln Val
100 105 110

His Glu Lys Ser Ile Leu Leu Val Ser Leu Pro Val Cys Leu Val Leu
115 120 125

Ser Glu Ile Pro Phe Met Ser Thr Trp Phe Leu Leu Val Ser Thr Phe
130 135 140

Ser Met Leu Pro Leu Leu Leu Lys Asp Glu Leu Leu Met Pro Ser Val
145 150 155 160

Val Thr Thr Met Ala Phe Phe Ile Ala Cys Val Thr Ser Phe Ser Ile
165 170 175

Phe Glu Lys Thr Ser Glu Glu Glu Leu Gln Leu Lys Ser Phe Ser Ile
180 185 190

Ser Val Arg Lys Tyr Leu Pro Cys Phe Thr Phe Leu Ser Arg Ile Ile
195 200 205

Gln Tyr Leu Phe Leu Ile Ser Val Ile Thr Met Val Leu Leu Thr Leu
210 215 220

Met Thr Val Thr Leu Asp Pro Pro Gln Lys Leu Pro Asp Leu Phe Ser
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Val Leu Val Cys Phe Val Ser Cys Leu Asn Phe Leu Phe Phe Leu Val
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Tyr Phe Asn

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 <211> 1617
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 <213> Mus musculus

<400> 96
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<210> 97
 <211> 536
 <212> PRT
 <213> Mus musculus

<400> 97
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Pro Arg Glu Leu Ala Ser Leu Ser Pro Asn Leu Ile Ser Ser Phe Phe
 35 40 45
 Trp Asn Asn Ala Pro Val Thr Pro Gln Ala Ser Pro Glu Pro Gly Asp
 50 55 60
 Pro Asp Leu Leu Arg Thr Pro Leu Tyr Ser His Ser Pro Leu Leu Gln
 65 70 75 80
 Pro Leu Ser Pro Ser Lys Ala Thr Glu Glu Leu His Arg Val Asp Phe
 85 90 95
 Val Leu Pro Glu Asp Thr Thr Glu Tyr Phe Val Arg Thr Lys Ala Gly
 100 105 110
 Gly Val Cys Phe Lys Pro Gly Thr Arg Met Leu Glu Lys Pro Ser Pro
 115 120 125
 Gly Arg Thr Glu Glu Lys Thr Glu Val Ser Glu Gly Ser Ser Ala Arg
 130 135 140
 Gly Pro Ala Arg Arg Pro Met Arg His Val Leu Ser Ser Arg Glu Arg
 145 150 155 160
 Leu Gly Ser Arg Gly Thr Arg Arg Lys Trp Val Glu Cys Val Cys Leu
 165 170 175
 Pro Gly Trp His Gly Pro Ser Cys Gly Val Pro Thr Val Val Gln Tyr
 180 185 190
 Ser Asn Leu Pro Thr Lys Glu Arg Leu Val Pro Arg Glu Val Pro Arg
 195 200 205
 Arg Val Ile Asn Ala Ile Asn Ile Asn His Glu Phe Asp Leu Leu Asp
 210 215 220
 Val Arg Phe His Glu Leu Gly Asp Val Val Asp Ala Phe Val Val Cys
 225 230 235 240
 Asp Ser Asn Phe Thr Ala Tyr Gly Glu Pro Arg Pro Leu Lys Phe Arg
 245 250 255
 Glu Met Leu Thr Asn Gly Thr Phe Glu Tyr Ile Arg His Lys Val Leu
 260 265 270
 Tyr Val Phe Leu Asp His Phe Pro Pro Gly Gly Arg Gln Asp Gly Trp
 275 280 285
 Ile Ala Asp Asp Tyr Leu Arg Thr Phe Leu Thr Gln Asp Gly Val Ser
 290 295 300
 Arg Leu Arg Asn Leu Arg Pro Asp Asp Val Phe Ile Ile Asp Asp Ala
 305 310 315 320
 Asp Glu Ile Pro Ala Arg Asp Gly Val Leu Phe Leu Lys Leu Tyr Asp
 325 330 335

Gly Trp Thr Glu Pro Phe Ala Phe His Met Arg Lys Ser Leu Tyr Gly
 340 345 350
 Phe Phe Trp Lys Gln Pro Gly Thr Leu Glu Val Val Ser Gly Cys Thr
 355 360 365
 Met Asp Met Leu Gln Ala Val Tyr Gly Leu Asp Gly Ile Arg Leu Arg
 370 375 380
 Arg Arg Gln Tyr Tyr Thr Met Pro Asn Phe Arg Gln Tyr Glu Asn Arg
 385 390 395 400
 Thr Gly His Ile Leu Val Gln Trp Ser Leu Gly Ser Pro Leu His Phe
 405 410 415
 Ala Gly Trp His Cys Ser Trp Cys Phe Thr Pro Glu Gly Ile Tyr Phe
 420 425 430
 Lys Leu Val Ser Ala Gln Asn Gly Asp Phe Pro Arg Trp Gly Asp Tyr
 435 440 445
 Glu Asp Lys Arg Asp Leu Asn Tyr Ile Arg Ser Leu Ile Arg Thr Gly
 450 455 460
 Gly Trp Phe Asp Gly Thr Gln Gln Glu Tyr Pro Pro Ala Asp Pro Ser
 465 470 475 480
 Glu His Met Tyr Ala Pro Lys Tyr Leu Leu Lys Asn Tyr Asp Gln Phe
 485 490 495
 Arg Tyr Leu Leu Glu Asn Pro Tyr Arg Glu Pro Lys Ser Thr Val Glu
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 Gly Lys Leu Asp Thr Ala Glu Gly
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<210> 98

<211> 2115

<212> DNA

<213> Homo sapiens

<400> 98

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<210> 99

<211> 535

<212> PRT

<213> Homo sapiens

<400> 99

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Ser Phe Leu Thr Leu Ser Trp Tyr Thr Thr Trp Gln Asn Gly Lys Glu
          20             25             30

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Lys Leu Ile Ala Tyr Gln Arg Glu Phe Leu Ala Leu Lys Glu Arg Leu
          35             40             45

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Arg Ile Ala Glu His Arg Ile Ser Gln Arg Ser Ser Glu Leu Asn Thr
          50             55             60

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Ile Val Gln Gln Phe Lys Arg Val Gly Ala Glu Thr Asn Gly Ser Lys
          65             70             75             80

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Asp Ala Leu Asn Lys Phe Ser Asp Asn Thr Leu Lys Leu Leu Lys Glu
          85             90             95

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Leu Thr Ser Lys Lys Ser Leu Gln Val Pro Ser Ile Tyr Tyr His Leu
          100            105            110

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Pro His Leu Leu Lys Asn Glu Gly Ser Leu Gln Pro Ala Val Gln Ile
          115            120            125

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Gly Asn Gly Arg Thr Gly Val Ser Ile Val Met Gly Ile Pro Thr Val
          130            135            140

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Lys Arg Glu Val Lys Ser Tyr Leu Ile Glu Thr Leu His Ser Leu Ile
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 Asp Asn Leu Tyr Pro Glu Glu Lys Leu Asp Cys Val Ile Val Val Phe
 165 170 175
 Ile Gly Glu Thr Asp Ile Asp Tyr Val His Gly Val Val Ala Asn Leu
 180 185 190
 Glu Lys Glu Phe Ser Lys Glu Ile Ser Ser Gly Leu Val Glu Val Ile
 195 200 205
 Ser Pro Pro Glu Ser Tyr Tyr Pro Asp Leu Thr Asn Leu Lys Glu Thr
 210 215 220
 Phe Gly Asp Ser Lys Glu Arg Val Arg Trp Arg Thr Lys Gln Asn Leu
 225 230 235 240
 Asp Tyr Cys Phe Leu Met Met Tyr Ala Gln Glu Lys Gly Ile Tyr Tyr
 245 250 255
 Ile Gln Leu Glu Asp Asp Ile Ile Val Lys Gln Asn Tyr Phe Asn Thr
 260 265 270
 Ile Lys Asn Phe Ala Leu Gln Leu Ser Ser Glu Glu Trp Met Ile Leu
 275 280 285
 Glu Phe Ser Gln Leu Gly Phe Ile Gly Lys Met Phe Gln Ala Pro Asp
 290 295 300
 Leu Thr Leu Ile Val Glu Phe Ile Phe Met Phe Tyr Lys Glu Lys Pro
 305 310 315 320
 Ile Asp Trp Leu Leu Asp His Ile Leu Trp Val Lys Val Cys Asn Pro
 325 330 335
 Glu Lys Asp Ala Lys His Cys Asp Arg Gln Lys Ala Asn Leu Arg Ile
 340 345 350
 Arg Phe Arg Pro Ser Leu Phe Gln His Val Gly Leu His Ser Ser Leu
 355 360 365
 Ser Gly Lys Ile Gln Lys Leu Thr Asp Lys Asp Tyr Met Lys Pro Leu
 370 375 380
 Leu Leu Lys Ile His Val Asn Pro Pro Ala Glu Val Ser Thr Ser Leu
 385 390 395 400
 Lys Val Tyr Gln Gly His Thr Leu Glu Lys Thr Tyr Met Gly Glu Asp
 405 410 415
 Phe Phe Trp Ala Ile Thr Pro Ile Ala Gly Asp Tyr Ile Leu Phe Lys
 420 425 430
 Phe Asp Lys Pro Val Asn Val Glu Ser Tyr Leu Phe His Ser Gly Asn
 435 440 445

Gln Glu His Pro Gly Asp Ile Leu Leu Asn Thr Thr Val Glu Val Leu
450 455 460

Pro Phe Lys Ser Glu Gly Leu Glu Ile Ser Lys Glu Thr Lys Asp Lys
465 470 475 480

Arg Leu Glu Asp Gly Tyr Phe Arg Ile Gly Lys Phe Glu Asn Gly Val
485 490 495

Ala Glu Gly Met Val Asp Pro Ser Leu Asn Pro Ile Ser Ala Phe Arg
500 505 510

Leu Ser Val Ile Gln Asn Ser Ala Val Trp Ala Ile Leu Asn Glu Ile
515 520 525

His Ile Lys Lys Ala Thr Asn
530 535

<210> 100

<211> 3226

<212> DNA

<213> Mus musculus

<400> 100

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<210> 101

<211> 740

<212> PRT

<213> Mus musculus

<400> 101

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             20             25             30
Thr Ile Gln Gln Arg Thr Gln Pro Glu Ser Ser Ser Met Leu Arg Glu
             35             40             45
Gln Ile Leu Asp Leu Ser Lys Arg Tyr Ile Lys Ala Leu Ala Glu Glu
             50             55             60
Asn Arg Asp Val Val Asp Gly Pro Tyr Ala Gly Val Met Thr Ala Tyr
             65             70             75             80
Asp Leu Lys Lys Thr Leu Ala Val Leu Leu Asp Asn Ile Leu Gln Arg
             85             90             95
Ile Gly Lys Leu Glu Ser Lys Val Asp Asn Leu Val Asn Gly Thr Gly
             100            105            110
Ala Asn Ser Thr Asn Ser Thr Thr Ala Val Pro Ser Leu Val Ser Leu
             115            120            125
Glu Lys Ile Asn Val Ala Asp Ile Ile Asn Gly Val Gln Glu Lys Cys
             130            135            140
Val Leu Pro Pro Met Asp Gly Tyr Pro His Cys Glu Gly Lys Ile Lys
             145            150            155            160

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Trp Met Lys Asp Met Trp Arg Ser Asp Pro Cys Tyr Ala Asp Tyr Gly
 165 170 175
 Val Asp Gly Thr Ser Cys Ser Phe Phe Ile Tyr Leu Ser Glu Val Glu
 180 185 190
 Asn Trp Cys Pro Arg Leu Pro Trp Arg Ala Lys Asn Pro Tyr Glu Glu
 195 200 205
 Ala Asp His Asn Ser Leu Ala Glu Ile Arg Thr Asp Phe Asn Ile Leu
 210 215 220
 Tyr Gly Met Met Lys Lys His Glu Glu Phe Arg Trp Met Arg Leu Arg
 225 230 235 240
 Ile Arg Arg Met Ala Asp Ala Trp Ile Gln Ala Ile Lys Ser Leu Ala
 245 250 255
 Glu Lys Gln Asn Leu Glu Lys Arg Lys Arg Lys Lys Ile Leu Val His
 260 265 270
 Leu Gly Leu Leu Thr Lys Glu Ser Gly Phe Lys Ile Ala Glu Thr Ala
 275 280 285
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 290 295 300
 Thr Ser Leu Tyr Leu Leu Gly His Asp Ile Arg Ile Ser Ala Ser Leu
 305 310 315 320
 Ala Glu Leu Lys Glu Ile Met Lys Lys Val Val Gly Asn Arg Ser Gly
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 Cys Pro Thr Val Gly Asp Arg Ile Val Glu Leu Ile Tyr Ile Asp Ile
 340 345 350
 Val Gly Leu Ala Gln Phe Lys Lys Thr Leu Gly Pro Ser Trp Val His
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 Tyr Gln Cys Met Leu Arg Val Leu Asp Ser Phe Gly Thr Glu Pro Glu
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 385 390 395 400
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 Thr Pro Asp Asn Ser Phe Leu Gly Phe Val Val Glu Gln His Leu Asn
 420 425 430
 Ser Ser Asp Ile His His Ile Asn Glu Ile Lys Arg Gln Asn Gln Ser
 435 440 445
 Leu Val Tyr Gly Lys Val Asp Ser Phe Trp Lys Asn Lys Lys Ile Tyr
 450 455 460

91/93

Leu Asp Ile Ile His Thr Tyr Met Glu Val His Ala Thr Val Tyr Gly
 465 470 475 480
 Ser Ser Thr Lys Asn Ile Pro Ser Tyr Val Lys Asn His Gly Ile Leu
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 500 505 510
 Gly Leu Gly Phe Pro Tyr Glu Gly Pro Ala Pro Leu Glu Ala Ile Ala
 515 520 525
 Asn Gly Cys Ala Phe Leu Asn Pro Lys Phe Asn Pro Pro Lys Ser Ser
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 Lys Asn Thr Asp Phe Phe Ile Gly Lys Pro Thr Leu Arg Glu Leu Thr
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 Ser Gln His Pro Tyr Ala Glu Val Phe Ile Gly Arg Pro His Val Trp
 565 570 575
 Thr Val Asp Leu Asn Asn Arg Glu Glu Val Glu Asp Ala Val Lys Ala
 580 585 590
 Ile Leu Asn Gln Lys Ile Glu Pro Tyr Met Pro Tyr Glu Phe Thr Cys
 595 600 605
 Glu Gly Met Leu Gln Arg Ile Asn Ala Phe Ile Glu Lys Gln Asp Phe
 610 615 620
 Cys His Gly Gln Val Met Trp Pro Pro Leu Ser Ala Leu Gln Val Lys
 625 630 635 640
 Leu Ala Glu Pro Gly Gln Ser Cys Lys Gln Val Cys Gln Glu Ser Gln
 645 650 655
 Leu Ile Cys Glu Pro Ser Phe Phe Gln His Leu Asn Lys Glu Lys Asp
 660 665 670
 Leu Leu Lys Tyr Lys Val Thr Cys Gln Ser Ser Glu Leu Tyr Lys Asp
 675 680 685
 Ile Leu Val Pro Ser Phe Tyr Pro Lys Ser Lys His Cys Val Phe Gln
 690 695 700
 Gly Asp Leu Leu Leu Phe Ser Cys Ala Gly Ala His Pro Thr His Gln
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 Arg Ile Cys Pro Cys Arg Asp Phe Ile Lys Gly Gln Val Ala Leu Cys
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 Lys Asp Cys Leu
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<210> 102

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative
retention signal peptide

<400> 102

Lys Asp Glu Leu

1

<210> 103

<211> 60

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 103

Ile Pro Phe Val Leu Ile Ala Ser Asn Phe Ile Gly Val Leu Phe Ser
1 5 10 15Arg Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr His Trp Thr Leu Pro
20 25 30Ile Leu Ile Phe Trp Ser Gly Met Pro Phe Phe Val Gly Pro Ile Trp
35 40 45Tyr Val Leu His Glu Trp Cys Trp Asn Ser Tyr Pro
50 55 60

<210> 104

<211> 58

<212> PRT

<213> *Drosophila virilis*

<400> 104

Leu Pro Phe Phe Leu Cys Asn Phe Ile Gly Val Ala Cys Ala Arg Ser
1 5 10 15Leu His Tyr Gln Phe Tyr Ile Trp Tyr Phe His Ser Leu Pro Tyr Leu
20 25 30Val Trp Ser Thr Pro Tyr Ser Leu Gly Val Arg Tyr Leu Ile Leu Gly
35 40 45Ile Ile Glu Tyr Cys Trp Asn Thr Tyr Pro
50 55

<210> 105

<211> 60

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 105

Ile Pro Phe Val Leu Ile Ala Ser Asn Phe Ile Gly Val Leu Phe Ser
1 5 10 15

Arg Ser Leu His Tyr Gln Phe Leu Ser Trp Tyr His Trp Thr Leu Pro
 20 25 30

Ile Leu Ile Phe Trp Ser Gly Met Pro Phe Phe Val Gly Pro Ile Trp
 35 40 45

Tyr Val Leu His Glu Trp Cys Trp Asn Ser Tyr Pro
 50 55 60

<210> 106

<211> 59

<212> PRT

<213> *Drosophila melanogaster*

<400> 106

Leu Pro Phe Phe Leu Cys Asn Leu Val Gly Val Ala Cys Ala Ser Arg
 1 5 10 15

Ser Leu His Tyr Gln Phe Tyr Val Trp Tyr Phe His Ser Leu Pro Tyr
 20 25 30

Leu Ala Trp Ser Thr Pro Tyr Ser Leu Gly Val Arg Cys Leu Ile Leu
 35 40 45

Gly Leu Ile Glu Tyr Cys Trp Asn Thr Tyr Pro
 50 55